Scholarly Communication at the University of Cape Town

Case Study Report

March 2014

Henry Trotter
Catherine Kell
Michelle Willmers
Eve Gray
Thomas King

This work was carried out by the Scholarly Communication in Africa Programme with the aid of a grant from the International Development Research Centre, Ottawa, Canada.

www.scaprogramme.org.za

Layout and proofreading by CompressDSL

www.compressdsl.com

Table of contents

Tables and figures

Abbreviations

ACU	Association of Commonwealth Universities
AGORA	Access to Global Online Research in Agriculture
ANC	African National Congress
APC	article processing charge
CAPS	Curriculum Assessment Policy Statements
CC-BY-SA	Creative Commons – Attribution and Share Alike
CERN	European Organisation for Nuclear Research
CET	Centre for Educational Technology (UCT)
CHAT	Cultural Historical Activity Theory
CHED	Centre for Higher Education Development (UCT)
CHET	Centre for Higher Education Transformation (South Africa)
CMS	content management system
Comm	Faculty of Commerce (UCT)
CSSR	Centre for Social Science Research
DHET	Department of Higher Education and Training (South Africa)
DLIS	Department of Library and Information Studies (UB)
EC	European Commission
ERC	European Research Council
EU	European Union
EUR	euro (currency)
FHSS	Faculty of Humanities & Social Sciences (UNAM)
FoH	Faculty of Humanities (UB)
FoS	Faculty of Science (UoM)
FTE	full-time equivalent
GDP	gross domestic product
GER	gross enrolment ratio
GNI	gross national income
HEI	higher education institution
HERANA	Higher Education Research and Advocacy Network in Africa
HINARI	Health InterNetwork Access to Research Initiative
HoD	head of department
HSRC	Human Sciences Research Council (South Africa)
HTML	hyper-text mark-up language
IBSS	International Bibliography of the Social Sciences
ICT	information and communications technology
IDRC	International Development Research Centre (Canada)
IMF	International Monetary Fund
IP	intellectual property
IR	institutional repository
IRMA	integrated research management application
ISI	Institute for Scientific Information
IT	information technology
JISC	Joint Information Systems Committee
JPG	Joint Photographic Experts Group
NGO	non-governmental organisation
NHS	National Health Service (UK)
NIDS	National Income Dynamics Study
NIH	National Institutes of Health (USA)

NIHR	National Institute for Health Research (UK)
NPC	National Planning Commission
NRF	National Research Foundation
OA	open access
OAI-PMH	Open Archives Initiative for Metadata Harvesting Protocol
OARE	Online Access to Research in the Environment
OCS	Open Conference System
OJS	Open Journal System
OpenDOAR	Open Directory of Open Access Repositories
PALM	Publishing and Alternative Licensing Model
PDF	portable document format
PERii	Programme for the Enhancement of Research Information
PI	principal investigation
PLOS	Public Library of Science
R&D	research and development
RCP	research and communication practice
RCUK	Research Council United Kingdom
REF	Research Excellence Framework (UK)
RePEc	Research Papers in Economics
ROAR	Registry of Open Access Repositories
RSA	Republic of South Africa
RSS	really simple syndication
SABINET	Southern African Bibliographic Information Network
SADC	Southern African Development Community
SALDRU	South African Labour and Development Research Unit (UCT)
SAPSE	South African Post Secondary Education
SARChI	South African Research Chairs Initiative
SARUA	Southern African Regional University Association
SCAP	Scholarly Communication in Africa Programme
SET	Science, Engineering and Technology
SWORD	Simple Web-service Offering Repository Deposit
THE	Times Higher Education
TIFF	tagged image file format
UB	University of Botswana
UCT	University of Cape Town
UNAM	University of Namibia
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USD	United States Dollar
UWC	University of the Western Cape
VC	vice chancellor
WoS	Web of Science
YRE	years of research experience
ZAR	South African Rand

Project group

Programme management
Ms Eve Gray (Programme Lead)
Ms Michelle Willmers (Programme Manager)

Researchers
Dr Catherine Kell (Research Lead)
Mr Garry Rosenberg (Research Lead)
Mr Henry Trotter (Research Officer)
Ms Samantha Richmond (Researcher)
Mr Thomas King (Research Assistant)

Research site collaborators
Dr Angelina Totolo (University of Botswana Research Coordinator)
Dr Olugbade Oladokun (University of Botswana Content Coordinator)
Mr Motswaiso Motswaiso (University of Botswana Research Assistant)
Mr Retlaohan Motsemme (University of Botswana Research Assistant)

Dr Girish Kumar Beeharry (University of Mauritius Research Coordinator)
Ms Roumita Seebaluck (University of Mauritius Research Assistant)
Ms Helina Dookhee (University of Mauritius Research Assistant)
Mr Vinand Prayag (University of Mauritius Research Assistant)

Prof Kingo Mchombu (University of Namibia Research Coordinator)
Mr Wilson Yule (University of Namibia Content Coordinator)
Ms Ndeshi Namupala (University of Namibia Research Assistant)
Mr Jacob Jacques Mushaandja (University of Namibia Research Assistant)
Ms Johanna Absalom (University of Namibia Research Assistant)

Dr Thomas Bossuroy (University of Cape Town Research Coordinator)
Mr Lighton Phiri (University of Cape Town Content Architect)
Ms Alison Siljeur (SALDRU/DataFirst Technical Administration)
Ms Clare Hofmeyr (University of Cape Town Content Coordinator)

Advisory panel
Dr Alma Swan (Key Perspectives Ltd)
Dr Cameron Neylon (PLOS)
Assoc. Prof Laura Czerniewicz (University of Cape Town)
Dr Leslie Chan (University of Toronto-Scarborough)
Ms Piyushi Kotecha (Southern African Regional Universities Association)
Prof Sten Ludvigsen (University of Oslo)
Mr Tony Carr (University of Cape Town)

Consultants
Mr Francois van Schalkwyk (CompressDSL)
Ms Patricia Liebetrau (University of KwaZulu-Natal)
Dr Dale Peters (University of KwaZulu-Natal)
Mr Hilton Gibson (Stellenbosch University)

Project assistance
Ms Shirley Rix (UCT Centre for Educational Technology Administrator)
Ms Leigh Wentzel (UCT CHED Faculty Finance Officer)
Ms Ruth Andrews (Financial Administration)
Ms Candice Kotze (Financial Administration)
Ms Susan Jacobson (Travel Guru)
Ms Lara Sierra-Rubio (Data Processing)
Ms Jamy Felton (Data Processing)
Ms Renée Elworthy (Transcription)
Ms Yassira Abrahams (Transcription)

Acknowledgements

Grateful acknowledgements are due to the vice chancellors, senior management, academic communities and support staff in each of the SCAP participating institutions. The programme was privileged to receive access to many sectors of institutional life and governance in each of the research sites. SCAP particularly acknowledges the role of institutional research coordinators – Dr Angelina Totolo (UB), Dr Thomas Bossuroy (UCT), Dr Girish Kumar Beeharry (UoM) and Prof Kingo Mchombu (UNAM) – who played a central role in facilitating research and implementation processes.

The programme also wishes to acknowledge the support and guidance of its advisory board, comprising Alma Swan, Cameron Neylon, Laura Czerniewicz, Leslie Chan, Piyushi Kotecha, Sten Ludvigsen and Tony Carr. It is additionally grateful for the unfailing support and services of SCAP consultants Dale Peters, Francois van Schalkwyk, Hilton Gibson and Patricia Liebetrau.

At UCT, thanks are due to the management and administrative staff of the host faculty, the Centre for Higher Education Development; particularly Assistant Faculty Finance Manager Leigh Wentzel for assistance with grant administration. In the Centre for Educational Technology special thanks are due to Office Administrator Shirley Rix. Thank you also to Susan Jacobson, the Travel Guru, for logistical support.

Finally, the programme wishes to extend its thanks and acknowledgements to the IDRC for ongoing support and engagement. In particular we wish to acknowledge the support and leadership of Programme Officer Khaled Fourati, who played a central role in bringing the SCAP programme to fruition.

Executive summary

The problem

African scholarly research is relatively invisible for three primary reasons:

1. While research production on the continent is growing in absolute terms, it is falling in comparative terms (especially as other Southern countries such as China ramp up research production), reducing its relative visibility.
2. Traditional metrics of visibility (especially the ISI/WoS Impact Factor) which measure only formal scholar-to-scholar outputs (journal articles and books) fail to make legible a vast amount of African scholarly production, thus underestimating the amount of research activity on the continent.
3. Many African universities do not take a strategic approach to scholarly communication, nor utilise appropriate ICTs and Web 2.0 technologies to broaden the reach of their scholars' work or curate it for future generations, thus inadvertently minimising the impact and visibility of African research.

Visibility in this context amounts to more than just "accessibility" – it means *digital* accessibility. It means that a scholarly object is profiled in such a way that makes it easily findable by search engines or databases through a relevant search string. Thus, it requires a communications strategy, one of the ingredients missing in many African universities' and scholars' approach to research dissemination.

A key way to enhance Africa's research visibility, reach and effectiveness is by communicating it according to open access principles. Making all African research outputs clearly profiled, curated and made freely available to the public would give African research a higher likelihood of not only shaping academic discourse because it would be more visible to scholars, but of getting into the hands of government, industry and civil society personnel who can leverage it for development.

This approach is already taking root in the global North. In the past few years, major funding bodies in the EU, the UK and the USA have legislated open access mandates, requiring that all research funded by them must be made open access. This will raise the visibility of those regions' research while (comparatively) lowering the visibility of Africa's research, which is not produced under a similar mandate.

However, most of the technologies required for engaging in open access communication are either already available at African institutions, freely available on the internet, or relatively inexpensive to purchase. Most also have access to the same free Web 2.0 technologies that allow individual scholars to enhance their scholarly profiles and collaborative opportunities. But these have not been incorporated into a strategic plan concerning scholarly communication, nor have enough African universities dealt with the skills and capacity challenges that new scholarly communication imperatives demand.

The research

The Scholarly Communication in Africa Programme (SCAP) was established to help raise the visibility of African scholarship by mapping current research and communication practices in four Southern African universities and recommending technical and administrative solutions based on experiences gained in implementation initiatives piloted at these universities. The universities that SCAP engaged were the:

- University of Botswana (UB)
- University of Cape Town (UCT)
- University of Mauritius (UoM)
- University of Namibia (UNAM)

Funded by the Canadian International Development Research Centre (IDRC), the three-year programme built on the findings of previous studies to address the particular challenges faced by African universities as they attempt to align their scholarly communication practices with rapidly evolving global standards in a manner that still reflects their core institutional values. The two questions driving SCAP's research were:

1. What is the current state of scholarly communication in (Southern) African universities?
2. How can the use of ICTs, technology platforms and open access publishing models contribute to the improvement of strategic scholarly communication, and what institutional structures are needed to support such an approach?

To answer these questions, SCAP conducted extensive research at our four partner institutions. At the UCT, we worked with the Faculty of Commerce (Comm) as our research site and the Southern African Labour and Development Research Unit (SALDRU) as our pilot site. Over the course of four site visits, we obtained information through "change laboratory" workshops (where pilot site participants analysed their scholarly communication ecosystems), surveys, interviews, day-recalls, conversations and ethnographic observation. These methods provided us with rich data for understanding communication activity at UCT Comm.

This research was informed by Cultural Historical Activity Theory (CHAT), a methodology that encouraged us to view scholarly communication as occurring in an ecosystem, where a change to any element impacts all of the elements in the system. This allowed to us to approach these sites as historically dynamic and culturally complex systems, requiring us to understand them as comprehensively as possible before recommending interventions aimed at raising the visibility of their research outputs.

Research and communication practices

To understand the state of scholarly communication in UCT Comm, we explored Comm scholars' values, research production, outputs, communication practices, networks and collaboration preferences.

Values

While UCT Comm scholars are motivated to conduct research by both intrinsic and extrinsic factors (such as earning promotion, generating new knowledge and aiding national development), they are most highly motivated by the desire to conform to and reinforce peer expectations to do so. This is due to the university's competitive, comparative and collegial institutional culture where research production forms the central core of the social ethos. This type of socially regulated peer pressure provides a powerful and sustainable research environment, which is less expensive and more efficient to maintain than those based on the managerial dictates of a central administration (institutional mandates) or the fluctuating whims of individual temperament (personal desire). It is the outcome of decades of development, the product of a historically old, well-resourced academic environment.

Research production

UCT Comm is a busy faculty with members typically involved in multiple research projects at a time. Though they spend substantial time engaged in teaching-related activities and administrative duties, research remains the primary component of their work. Their efforts are supported by a wide variety of funding opportunities emanating from the government (such as the National Research Foundation – NRF), UCT, foreign universities, local and foreign industry players, local and foreign funding agencies and more. Unlike other Southern African scholars we interviewed, who not only spend the bulk of their time engaged in teaching-related activities but also struggle to tap the diversity of funding options available in South Africa, UCT Comm scholars are able to engage in high-level, empirical and data-intensive research through the funding they win.

Outputs

From their research, UCT Comm staff members typically produce scholar-to-scholar outputs such as high Impact Factor journal articles, book chapters, conference papers and books. They are incentivised to focus on these outputs by their faculty rewards guidelines, the Department of Higher Education and Training's (DHET) publication subsidy policy and their internationally engaged scholarly environment. With regard to "alternative" outputs – such as briefing papers, policy briefs, working papers, reports and other genres that are more accessible for non-academic audiences – they show less interest, as these are not seen as "serious" academic outputs.

This is slightly nuanced in the Southern African Labour and Development Research Unit (SALDRU), which has a well-established working paper series that is accessible to the public. Though these papers are written for a scholarly audience, unit members say that they are starting to see the value of extending the reach and focus of their materials.

Communication

This relative disinterest in alternative outputs is coupled with the fact that most UCT Comm staff members are only partially aware of or engaged with the changing communication opportunities that new ICTs offer for disseminating their work. For the most part, they confine their communication activities to traditional modes, such as publishing in journals (which then handle the task of dissemination). While the open access movement and availability of free online tools have expanded the opportunities for academics to profile their work on the internet and seek out new collaborative partners, many UCT Comm scholars have yet to take full advantage of them.

Many also lack the knowledge or training to leverage these tools for academic purposes, but they point out that dissemination through such channels is not rewarded by the university, the DHET or the NRF (which prioritise high Impact Factor dissemination channels). And though they are often hired by civil society groups, industry players or government ministries to produce research for them, they rarely ensure that their other research outputs are accessible to those same groups. Their focus on scholar-to-scholar outputs therefore decreases the potential social impact of their work because it often fails to reach the people who could leverage it for economic or developmental purposes.

Networks and collaboration

This comfort with the traditional mode of scholarly communication coincides with scholars' preference to operate within their disciplinary boundaries. According to UCT scholars and managers, university connectivity is deep, rich and vertical as opposed to broad and horizontal. They describe the landscape as one of "silos" in which academics share and collaborate with others, but only those in the same field. The interdisciplinary ideal has yet to typify research engagements at UCT.

UCT Comm scholars are also highly networked with international colleagues, often acting as "Southern" or "developing world" or "African" experts in larger trans-national research projects. Indeed, as an institution, UCT enjoys a "gateway" status for many international universities and agencies that seek to engage with scholars on the continent. This is due, in part, to the fact that UCT resembles typical research universities in the global North, providing a sense of familiarity and reassurance that many funders desire when collaborating with partners outside of their own region. Thus, UCT's "difference" is important to potential foreign collaborators, just as its "sameness" is.

Policy

The UCT administration is currently engaged in and facilitating an institution-wide discussion about scholarly communication, developing strategies that will later guide the university's curation, profiling and dissemination efforts. However, it will still be some time before these are ratified as policy. This has had two effects: since UCT has only embarked on these discussions recently, its approach to communication remains behind developments taking place elsewhere; and because the university lacks a coherent, integrated dissemination policy, it has inadvertently reduced the likelihood that its research outputs will reach local audiences that can leverage them for development.

Open access

At the moment, there is no official incentive for UCT scholars to publish their outputs in an open access (OA) fashion. There is also no policy on the payment of article processing charges (APCs), which would encourage more OA dissemination. However, this is not the only issue hindering the promotion of OA. In the UCT Comm faculty, many scholars remain unconvinced of the merits of OA outputs. They do not buy into the arguments for OA against the traditional mode of relatively "closed" communication on which they have built their careers. Of all the Southern African scholars that SCAP engaged, UCT Comm scholars are the most cautious about embracing this new model, which has yet to be proven superior in their eyes.

Rewards and incentives

The faculty-level reward and incentive system currently prioritises the reward of high-prestige scholar-to-scholar outputs in specified journals and books. This is reinforced by the South African Post Secondary Education (SAPSE) system run by the DHET, which subsidises research by giving funds to universities for the outputs their scholars produce in officially recognised publications.

This situation contributes to a tension between the university's desire for international recognition (prestige) and its desire for local social responsiveness (relevance). The quest for prestige saturates the language emanating from management, as it deploys terms such as "world class", "excellence" and "top rank" to signal its ambitions. This leads it to focus on work that leads to "prestige", which is work that is recognised by Northern academic journals, scholars and ranking systems. But the interests of international academics or rankings do not necessarily coincide with the demands of local reality, meaning that if the university pursues prestige too much, it will neglect its local constituents and risk isolating itself as an ivory tower, rather than being the socially responsive institution that it would also like to be.

With every journal article that remains trapped behind a publisher paywall, the university misses an opportunity to enhance both its prestige and its relevance. In addition, with every research or dissemination choice that caters to the tastes of "international" (Northern) academic consumers, rather than also assuring that local stakeholders can benefit from it, the university achieves prestige at the expense of its mandate to impact local communities.

Institutional culture

UCT has a "collegial" institutional culture in which structural power is located largely in the faculties and where individuals enjoy significant autonomy and freedom. This culture empowers scholars and promotes high research productivity. However, because power, connections and conversations tend to be constituted through the faculties – in relatively discrete "silos" – it is difficult for the university to adapt quickly to new imperatives, such as the need for open scholarly communication practices. The central administration does not have the power or inclination to simply enforce an institution-wide policy without first obtaining the buy-in from all of the different faculties and departments. This process takes time, but it forms one of the costs of collegiality.

Research culture

UCT possesses a robust, productive and mature research culture. That culture is based on scholars' high level of networking and collaboration, their high sense of peer expectation regarding research production, their high participation rates in journal editorial boards (helping to shape their fields) and the high level of funding opportunities made available to them both locally and internationally.

Infrastructure and capacity

For the most part, UCT already possesses the resources necessary to optimise scholarly communication, but it is one of only a few universities in South Africa that does not yet have an institutional repository. This stands in contrast to the university's vanguard role in so many other educational endeavours. At the moment, different units, departments, centres and faculties possess websites or servers for profiling their content, but they do not abide by the same technical protocols (meaning that they are not interoperable) and they often have no relationship to each other. They are ad hoc efforts, typical in a decentralised institutional context, yet inefficient and devoid of a broader strategy.

Skills and capacity

Despite the generally solid levels of capacity at the university, there is currently little consolidated expertise on new forms of scholarly communication. It exists in pockets, often in the form of "institutional champions" who are spread across the university and do not necessarily hold any formal title or institutional mandate in this regard. One of the reasons for this is that it is difficult to identify where this activity should be located, especially given the decentralised nature of activity in the institution.

Implementation initiative

With the insights above gained largely through our various research instruments, SCAP implemented an intervention focused on making SALDRU's vast collection of content more accessible and visible through an updated subject repository based around a consolidated and strategic unit-level communications plan. Some of the insights that we gained from the implementation initiative were that:

- In the absence of an institutional scholarly communication policy or platform, decentralised dissemination models remain viable if informed by a coherent strategy.
- Research entities require significant internal capacity and careful coordination with institutional technical support staff in order to ensure that their communication activities adhere to institutional requirements and best practice.
- Most academics have varying levels of familiarity with new scholarly communication tools, technologies and practices, but they rarely have the time or expertise to explore, evaluate or utilise them in a way that would optimise dissemination activity.
- Third-party intermediaries can play an important role in helping academic entities define a strategic approach to scholarly communication activity.

Recommendations

Based on the insights yielded from our research and implementation activities, SCAP believes that four stakeholders can play a key role in improving UCT's dissemination activity, to whom we offer the following recommendations:

To the national government

Require all NRF-funded research to be made open access.

Incentivise open access dissemination by increasing the SAPSE dividend paid for OA outputs above that of the dividend paid for non-OA outputs.

To the UCT administration

Develop an open access policy mandating that all publicly funded research be made OA.

Apportion a percentage of all SAPSE subsidy allotments for dissemination activity.

Establish a policy for the support for and payment of APCs.

Reward innovation in scholarly communication practices through updated promotion criteria.

Establish or identify support service providers who can translate scholars' research for government and community-based audiences.

Develop a communication officers/content managers network within UCT so that disparate dissemination activity can be pursued in a more cohesive and strategic manner.

Train and incentivise scholars to use Web 2.0 platforms so that they can share in the responsibility of making their own research more visible.

Encourage scholars to share their research on Wikipedia to reach a broader audience.

Collaborate in the construction of short-term regional exchanges for administrators and librarians, allowing them to contribute to UCT's "Afropolitanisation" effort.

Invest in regional journal production opportunities.

Incentivise regional research collaboration through enhanced funding and recognition for SADC-based activities.

To UCT scholars

Share responsibility with the administration for research visibility. Communicate research findings to the audiences that could best leverage it for developmental purposes.

To research funding agencies

Determine the feasibility of developing a regional megajournal.

Chapter 1.
Programme overview

The Scholarly Communication in Africa Programme (SCAP) was established to help raise the visibility of African scholarship by mapping current research and communication practices in four Southern African universities and by recommending and piloting technical and administrative innovations at these sites based on open access dissemination principles.

SCAP was founded with the understanding that African scholarly research is relatively invisible for three primary reasons:

1. While research production on the continent is growing in absolute terms (Metcalfe, Esseh & Willinsky 2009; Mouton 2010; Tijssen 2007), it is falling in comparative terms (especially as other Southern countries, such as China,[1] ramp up research production), reducing its relative visibility.
2. Traditional metrics of visibility (especially the ISI/WoS Impact Factor)[2] that measure only formal scholar-to-scholar outputs (i.e. journal articles and books) fail to make legible a significant amount of African scholarly production, thus under-estimating the amount of research activity on the continent.
3. Many African universities do not take a strategic approach to scholarly communication, nor utilise appropriate ICTs and Web 2.0 technologies to broaden the reach of their scholars' work or curate it for future generations, thus inadvertently minimising the impact and visibility of African research.

The first challenge listed here speaks to a global phenomenon that is defined by macro-level disparities in resources, infrastructure, capacities and population sizes. These disparities help make sense of Africa's various higher education predicaments, but they

[1] Juliana Chan (2011) Asia: The growing hub of scientific research, *The Asian Scientist*, 3 April 2011. Available at: www.asianscientist.com/features/asia-future-hub-scientific-research/

[2] The Impact Factor – a metric devised by the Institute for Scientific Information (ISI) in the 1960s and now maintained by the Thomson Reuters Web of Science (WoS) – purports to measure the "impact" of a journal within a given academic field and, by proxy, suggest an evaluation of the relative impact of the articles published within it. The Impact Factor is a number representing the average number of citations that a journal's articles collectively receive during a two-year period. Thus if the impact factor for a journal in 2011 is 4, then the articles published in that journal in 2009 and 2010 collectively averaged four citations each in 2011.

cannot be changed by a small research project such as SCAP. Thus, while the SCAP team was always cognisant of this overriding context that structured the scholarly communication possibilities in Africa, we did not focus on tackling them, but rather on the latter two challenges, which were located in our sphere of influence.

The second challenge – concerning scholarly visibility metrics – is also a global phenomenon, but largely confined to the academic community and a matter of intense debate. Traditional scholarly metrics are under threat by funders, research assessment officers, open access publishers and alternative metrics advocates who seek to utilise the capacity of Web 2.0 platforms to gain a more accurate and comprehensive sense of the impact that a scholarly output has (beyond the blunt journal citation aggregations that WoS provides). Because many scholarly outputs from Africa are not published in WoS-listed journals – but rather in a plethora of other outlets – they do not get measured in the prestige-based indices that render so much of African research (including reports, briefs, conference papers, seminar presentations, consultancy work, etc.) invisible.[3] The conclusion that many analysts draw from this is that no research of value is taking place on the continent – an inappropriate conclusion given the limited perspective it provides of African research production. Therefore, in our effort to raise the visibility of African research, we advocated for scholars worldwide to use a more comprehensive, precise and "complementary" set of metrics than those currently used to assess scholarly visibility.

The third challenge – concerning the lack of strategic engagement with scholarly communication by African universities – was the main issue that SCAP hoped to change. This is a challenge located largely within the boundaries of the continent, the product of choices and priorities by African governmental ministers, university managers and academics. As a research and implementation initiative located in Africa, committed to locally appropriate solutions, SCAP decided to intervene at this level where we could have the greatest effect. It was our belief that if we could research and advocate a more strategic approach to scholarly communication, we could not only raise the visibility of Southern African research, but also offer a model to other African universities seeking to do the same. This would be based on strategic policy innovations, open access principles and Web 2.0 ICT platforms.

The universities that SCAP engaged were the:

- University of Botswana (UB)
- University of Cape Town (UCT)
- University of Mauritius (UoM)
- University of Namibia (UNAM)

[3] Mouton (2010: 8) states that "international publication in the ISI-journals (19,154 articles for the total period 1990–2007) only constitutes about one third of total social science scholarship in the [Southern African] region." This corresponds with the ratios given by UNAM in a recent research report that says, "the year under review has seen a total output of 394 publications from the University, 23% of which are peer-reviewed journal articles and 11% are books and book chapters" (UNAM 2009: 6), meaning that 66% of outputs were "other" types (2009: 9), guaranteed to be invisible according to the ISI/WoS index. This high production ratio of non-indexed materials in the region is discussed in more detail in Chapter 5.

Scholarly in/visibility

Scholarly communication comprises a broad range of activities "including the discovery, collection, organisation, evaluation, interpretation, and preservation of primary and other sources of information, and the publication and dissemination of scholarly research" (Cullyer & Walters 2008: 1). In this report, it will largely focus on the communication activities necessary for research collaboration and output dissemination. However, the effectiveness of this communication – especially output dissemination – is shaped by the fact that audience attention is a scarce resource. There are more scholarly outputs produced than can be equally engaged by the academic community, meaning that scholarly outputs are in a state of competition with each other, with some achieving greater "visibility" than others.

According to Abrahams, Burke and Mouton (2010: 22), "visibility is comprised of a number of features including visibility of authors and content through abstracting and indexing databases, through availability in library collections, through web-based publishing, and visibility of research performance as measured through various bibliometric measures such as citation counts and impact factors." It is not simply publication in a journal listed by the Thomson Reuters WoS, which has for a long time been the standard by which visibility is assessed. Rather:

> *Visibility of scholarly communication means that specific knowledge and authored works can be discovered because they are traceable. More importantly, in this regional context, visibility means that research on subjects and themes of local interest should be made public in ways that will enable the relevant actors (researchers, students and development practitioners) to easily identify local research that can be a valuable contribution to society, whether for future knowledge production or for development practice.* (Abrahams, Burke & Mouton 2010: 22–23)

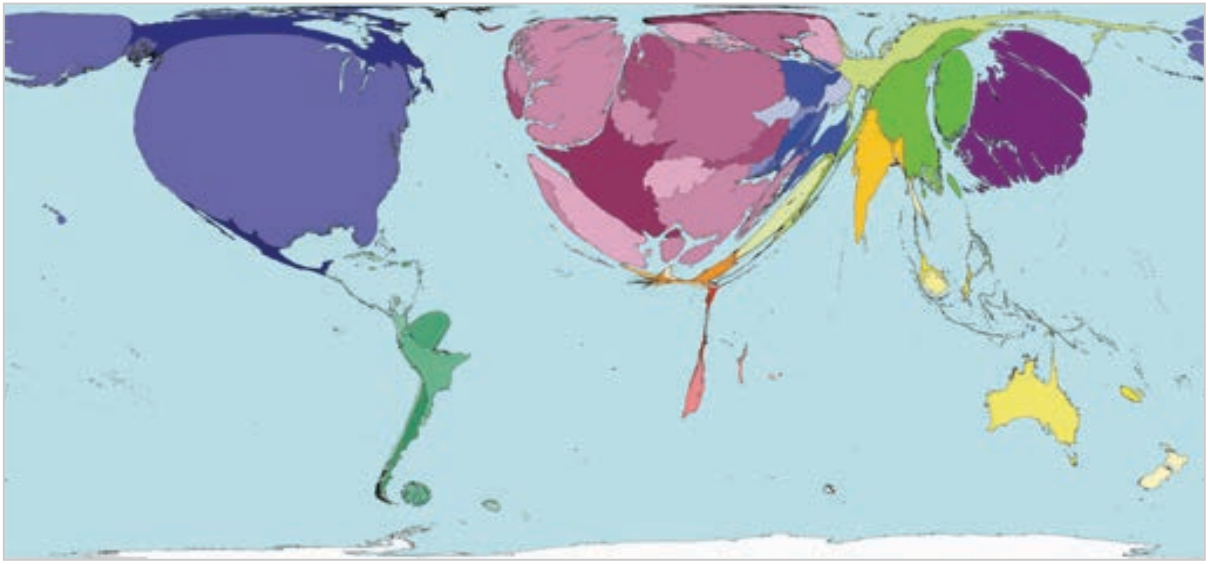
This means that visibility amounts to more than just "accessibility" (such as when an object is available in hard copy at a university library). It means *digital* accessibility. Moreover, it means that a scholarly object is profiled (usually through metadata) in such a way that makes it easily findable by search engines or databases through a relevant search string. Without such metadata, or without the object shared in a format that allows crawlers to search its text (such as PDFs and HTML pages rather than TIFFs and JPGs), then the digital object remains virtually invisible. In those cases, it is technically accessible, but essentially invisible because it is not locatable using standard searching procedures. Thus, visibility requires a communications strategy, one of the ingredients missing in many African universities' and scholars' approach to research dissemination.

This lack of strategy is partially responsible for the disorienting image in Figure 1.1 which visually represents the relative contributions made by each country to global scientific research output as published in ISI-listed journals (in 2001). The fish-eye effect of this perspective squeezes the massive African continent down to the size of a narrow peninsula, thus begging for explanation. However, this startling representation is indicative not of the absence of research activity per se, but of the continent's lack of

representation in "international" journals and its inefficiency at disseminating research findings in a more strategic, representational manner. As Tijssen (2007: 307) points out:

> *It is important to keep in mind that these diminishing shares of African science do not reflect a decrease in an absolute sense, but rather an increase less than the worldwide growth rate. During the last 15 years, African output has in fact risen by 38%, up to some 46,000 articles in 2001–2004.*

Figure 1.1 Representation of global scientific output, by proportion of ISI article production[4]



Chan, Kirsop and Arunachalam (2011: 1) further caution against an over-simplified reading of this cartographic representation, in that "this inequity has led to the misguided notion that little, if any, research of substance is generated in the global South, and that the needs of researchers in poor countries are therefore met solely by information donation from the North."

However, given that this map is based on data from 2001, it likely shows Africa in a "thicker" visual profile than if the numbers were current. It does not account for the explosion of research production from places like China, which would render Africa's profile even "skinnier", despite the continent's absolute increase in high-rated scientific publications.[5] Thus the challenges regarding Africa's visibility remain a persistent concern even as scholarly communication trends evolve.

---

[4] The map illustrates the relative proportions of ISI-rated scientific papers published per million people in 2001. This covers articles in physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering, technology, and earth and space sciences. The number of scientific papers published by researchers in the USA was more than three times greater than the number published by the second-most-publishing nation, Japan. Source: www.worldmapper.org/display.php?selected=205 [accessed 2 September 2010]. Image copyright SASI Group (Univ. of Sheffield) and Mark Newman (Univ. of Michigan). Permission has been granted to reproduce this figure under the terms of the Creative Commons Attribution License.

[5] This particular Worldmapper image has not been updated since 2001 according to Professor Mark Newman (private communication), one of the creators of the map. Other evidence that we have drawn from Tijssen (2007) and Mouton (2010) suggests that an updated map would make Africa appear even less visible. Indeed, due to its comparatively low level of outputs in ISI-rated journals, Africa is often lumped into a "rest of the

Furthermore, as Mouton (2010: 6–7) explains:

> *The ISI-journals have a distinct Anglophone bias which leads to poor coverage of Francophone and (to a lesser extent) Lusophone countries in SSA [sub-Saharan Africa]. In addition the ISI's coverage of small journals in developing countries is not good. The latter is a result of the policy of the ISI to include only the highest impact journals in the world which means that many journals in the developing countries (which have small circulation lists and hence restricted readerships) are thereby automatically excluded. All of this means that a significant proportion of African social science is simply not visible in international indexes.*

Hence, because so much African scholarship remains outside of the ISI/WoS index, and because continental institutions and scholars have not applied a cohesive or strategic approach to disseminating outputs, "there is a preponderance of unpublished research, including conference and advocacy papers, technical and consultancy reports, theses and dissertations ('grey' literature) which is not easily accessible because it is generally not held in university libraries or available online" (Abrahams, Burke & Mouton 2010: 29).

Of course, institutions around the world face new imperatives to increase investment in research production and knowledge management. For research institutions, this means adapting a strategic focus on content curation and profiling so as to boost institutional reputation, remain competitive in global institutional rankings, provide support services that academics rely on to conduct research and collaborate internationally, and maintain compliance with grant funder mandates.

For African research higher education institutions (HEIs) there are additional pressures for developing scholarly communication practice and ramping up the institutional content curation effort. For instance, faced with limited research grant funding and constrained by international publishing opportunities, African HEIs must choose whether they want to support local (particularly niche) research by making outputs from that effort freely and openly available. Doing so would encourage the production of local scholarship and ensure that African scholars have access to locally relevant content by authors embedded in the context. But failing to do so would wither nascent research buds on the continent, forcing greater reliance on externally produced research. As Abrahams, Burke and Mouton (2010: 24) point out:

> *Students, researchers and practitioners are likely to cite and utilise authored works from abroad over work from the region because of high versus low visibility in particular areas of study, such as in genetics, education and environmental engineering, where research output is particularly low. Thus, low visibility and low accessibility are major factors in slowing down research production on the sub-continent, thus limiting the application of knowledge for development purposes.*

---

world" category in various research impact reports. (See for instance the National Science Foundation's *Science and Engineering Indicators 2012 Digest* section on "Research Outputs: Publications and Patents" at: www.nsf.gov/statistics/digest12/outputs.cfm#1)

The need for research to address development is not unique to the African context, but the links between dissemination, innovation and development increase the imperative (and prospective return) for African universities to profile and curate their own research. In line with this approach, the knowledge production enterprise funded by taxpayers needs to move beyond a "closed" academic enterprise (in which knowledge exchange typically happens on a scholar-to-scholar basis by means of the traditional journal article or book chapter) to an "open" exchange process that includes scholar-to-community and scholar-to-government activities (utilising a broad range of content formats and genres).

Open access for development

A key way to enhance the visibility, reach and effectiveness of African research is by communicating it according to open access principles. By "open access", we mean that scholarly research outputs are made freely available:

> *on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles [and other output types], crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.* (BOAI 2002)[6]

Making all African research outputs clearly profiled (through metadata), curated (on stable digital platforms) and freely available to the public (at no cost to the user) would give African research a higher likelihood of not only shaping academic discourse because it would be more visible to scholars, but of getting into the hands of government, NGO, industry and civil society personnel who can leverage that research for economic growth and development.[7]

According to Chan, Kirsop and Arunachalam (2011: 1), the growing volume of open access resources "provides a far greater degree of freedom for researchers to exchange and collaborate, for knowledge to be translated into useable forms by frontline health workers, and for emerging technologies such as text mining and semantic tagging for faster knowledge discovery to be used." Moreover, research shows that open access publication increases the likelihood that a scholarly output is both read and downloaded at a higher rate than non-open access publications (Gargouri *et al.* 2010).

---

[6] A number of groups and organisations – in Budapest (2002), Bethesda (2003) and Berlin (2003) – have defined open access from slightly different perspectives. For a useful discussion of open access, see: Suber (2012); Peter Suber's "Open Access Overview", available at: http://legacy.earlham.edu/~peters/fos/overview.htm; and the OASIS (Open Access Scholarly Information Sourcebook) article, "Open Access: what is it and why should we have it?" Available at: www.openoasis.org/index.php?option=com_content&view=article&id=130&Itemid=390

[7] For example, "The publicly funded Human Genome Project and its freely reusable data generated a massive 141–fold return on investment in economic returns alone [and] 30% more new clinical products than the privately funded, closed genome-sequencing project of the US biotech firm Celera Genomics" (Neylon 2012).

However, at the moment, "many research publications by African researchers, especially those focused on domestic or regional African issues and problems, are not accessible through the modern ICT facilities" (Tijssen 2007: 324). Furthermore, "multiple stakeholders including university presses, libraries, and central IT departments are challenged by the increasing volume and the rapidity of production of these new forms of publication in an environment of economic uncertainties" (Harley 2008: 2).

This means that African universities – many of which are only now beginning to develop research agendas of their own – must also establish new capacity, processes, governance structures, business models and policy frameworks for open access communication. This is not a trivial matter, nor is it easily achieved. Yet despite the burden that a move to a strategic engagement with open access would mean for most African universities, SCAP remains convinced that it must proceed.

Consider the broader open access context in which African scholars must chart their path: in the past few years, major funding bodies in the EU, the UK and the USA have legislated open access mandates, requiring that all research funded by them must be made open access (see Chapter 4 for more details on funder mandates). This will raise the visibility of the North's own research outcomes while (comparatively) lowering the visibility of Africa's research, which is not produced under a similar mandate. The flood of research that will emerge from the North will further marginalise the relatively small volume of outputs coming from Africa. This research will not only be openly shared, but will be curated and described with metadata, making content interoperable, searchable and indexable at unprecedented levels.

These global developments – which will likely be matched in other parts of the world soon – require urgent action from African institutions. SCAP believes that this marks an opportunity for African universities to move beyond playing "catch-up" with the North to leveraging new technologies and approaches to address local ambitions while participating in the international scholarly landscape.

Technology and capacity

Africa's response to this changing communications environment will require not only strategic dissemination policies and open access publishing practices, but appropriate use of new technologies that are reshaping the scholarly communication environment. The advances in ICTs over the past years – such as broadband internet, Web 2.0 platforms and inexpensive digital storage devices – have transformed scholarly communication, yet, to date, many ICT innovations have failed to act as an equalising force in academic collaboration and contribution on the continent. In some ways, they have reinforced familiar global inequalities that resemble a "digital divide" (Fuchs & Horak 2008) between the visible and the invisible.

However, this need not be the case in the future. Most of the technologies required for engaging in open access communication and visibility-raising dissemination are either already available at African institutions, freely available on the internet, or relatively inexpensive to purchase. For instance, many African universities possess high-resolution

scanners, institutional repositories, websites, computers, servers and access to the internet. They also have access to the same free Web 2.0 technologies[8] – such as Academia.edu, ResearchGate, Mendeley and FigShare – that have allowed individual scholars elsewhere to enhance their scholarly profiles and collaborative opportunities. The problem is that these have not been incorporated into a strategic plan concerning scholarly communication. They have been utilised in an ad hoc fashion, often the pet project of a lone innovator, but not part of a systematic approach to an institutional issue. Thus the solution is not simply to have "access" to current technologies, but to have a plan for how to use them.

Moreover, the incorporation of new ICTs into an existing scholarly ecosystem requires the skills and capacity to support and maintain them. This is often lacking at African universities where training efforts focus on other aspects of a job (such as book cataloguing for librarians rather than DSpace metadata capturing of alternative outputs). It is also due to a lack of funding to hire and train new people.

Thus, each of these elements is important for raising the visibility of African scholarship: an open access dissemination strategy, access to and use of Web 2.0 technologies and the human capacity and skills to use them. Each of these exists within reach of most African universities, but only if they are made a priority. The SCAP project was initiated to help achieve that.

Project description

Funded by the Canadian International Development Research Centre (IDRC), the three-year SCAP programme, which commenced in 2010, built on the findings of a number of previous studies and interventions[9] to address the particular challenges faced by African universities as they attempt to align their scholarly communication practices with rapidly evolving global standards in a manner that reflects their core institutional values.

SCAP was a research and implementation initiative that sought to demonstrate, through the use of case studies and the development of a research evidence base, the financial, institutional and technical feasibility of universities in Southern Africa to assume greater responsibility for publishing their research in an open manner. Its central aim was to increase the visibility of African research and scholarly communication.

The primary question driving SCAP's research was:

> *What is the current state of scholarly communication in (Southern) African universities?*

[8] Web 2.0 (or Web 2) in the context of this project refers to advanced internet technology and applications such as blogs, wikis, social networking, bookmarking and RSS (really simple syndication) feeds. These technologies are commonly associated with web applications that facilitate interactive information-sharing, interoperability, user-centred design and collaboration.

[9] At the local level, these included UCT Centre for Educational Technology projects funded by the Shuttleworth Foundation in the period 2006 to 2009, namely the OpeningScholarship project and the UCT Open Educational Resources initiative, as well as other initiatives such as the IDRC-funded PALM Africa project. At the regional level, the programme was strongly informed by prior research and networking activity of the Southern African Regional Universities Association (SARUA) and the activities of the IDRC Open African Innovation Research and Training (OpenAIR) intellectual property research programme.

To answer this, SCAP visited each partner university four times over the course of two years in order to conduct interviews with scholars, librarians and managers, and to gather data through seminars, "change laboratory" workshops and surveys (a process discussed in detail in Chapter 2).

A secondary question driving our research was:

> *How can the use of information and communication technologies (ICTs), technology platforms and open access publishing models contribute to the improvement of strategic scholarly communication, and what institutional structures are needed to support such an approach?*

To answer this, SCAP engaged in a series of institution-based implementation initiatives at each pilot site, stimulating the research environment and observing the results (discussed in detail in Chapter 6).

The specific objectives of the project were to:

1. Map the current status of research dissemination in four selected universities from four Southern African countries.
2. Understand the policy, ICT infrastructure and administrative support systems needed to integrate scholarly publishing and dissemination at these universities.
3. Work with partners from selected universities to support the use of open source platforms that could interface with outputs such as journals, books and conference proceedings.
4. Build capacity in managing and sustaining an integrated scholarly communication system.
5. Explore the costs and benefits resulting from open access communication.
6. Develop complementary metrics that could align quality concerns, recruitment, recognition and rewards systems in order to promote greater access to knowledge.
7. Engage with institutional and governmental policymakers to raise the visibility of African research.

SCAP was originated in response to the need to grow the profile and global competitiveness of African research output. The project's primary concern was with dissemination out of universities, rather than issues around building research capacity. That said, it acknowledged the intrinsic link between research processes and communication, and the importance of examining current scholarly communication policy, practice and infrastructure against the institution's wider cultural historical context.

The complex nexus of issues and the interrelationships between low research productivity, declining annual national expenditure on research and development, and other national and regional factors affecting scholarly productivity has been documented in other studies, such as those by Abrahams *et al.* (2008), ASSAF (2006), Cloete, Bailey and Maassen (2011), Habib and Morrow (2007), Harle (2010), Kotecha, Walwyn and Pinto (2011), Kotecha, Wilson-Strydom and Fongwa (2012), Mouton (2010) and Mouton *et al.* (2008). The SCAP research and implementation process built on this complex-systems approach seeking not only to understand institutional scholarly communication

activity systems across micro (department/faculty/unit), meso (institutional) and macro (national/regional) levels, but also to grasp how these systems have been shaped by historical factors over time.

SCAP operated on the assumption that although African higher education environments faced a myriad of challenges, there was an opportunity to increase the production and visibility of scholarly outputs in Africa through the use of Web 2.0 technologies, digital publishing and curation platforms, and confederated computing and content hosting structures.

But before these opportunities could be harnessed, each institution's scholarly communication ecosystem had to be described, analysed and understood – a process necessitating significant research (the results of which are discussed in Chapter 5). It also required an ambitious advocacy component that required us to engage with university scholars, librarians and managers, as well as other higher education stakeholders in government and civil society.

This report shares the results of SCAP's research and advocacy efforts, describing not only the scholarly communication ecosystem that currently exists at this partner institution, but the opportunities available for raising the visibility of its scholarship. It concludes with a discussion of our research findings and a series of recommendations – aimed at the national government, university management, university academics and research funding agencies – that we believe would enhance the communicative and developmental potential of the university's research.

Chapter 2.
Project components and methodology

The SCAP programme arose from an 18-month scoping process that took place in 2008/2009 under the direction of Eve Gray, an African scholarly communications and open access expert (Gray 2006, 2010; Gray & Kahn 2010; Gray, Trotter & Willmers 2012). Hosted jointly by the Centre for Educational Technology and the Research Office at the University of Cape Town, SCAP was launched in March 2010.

Selection of pilot sites

One of SCAP's first tasks was to identify the three other universities – along with UCT, SCAP's host institution – to participate as partner sites. Though SCAP hoped that our work would be able to impact the discourse on scholarly communication throughout Africa, for practical (financial, logistical and linguistic) reasons, we decided to focus our research on universities in the Southern African Development Community (SADC) region. Through a collaborative process with the Southern African Regional Universities Association (SARUA),[10] SCAP assessed potential university partners against a series of criteria such as level of research engagement, history of dissemination activity, as well as other characteristics such as size and language.

The four institutions in the SCAP sample happened to be in the most research-productive countries in the SADC region according to the Thomson Reuters ISI indexes. As Mouton *et al.* (2008) show, South Africa is the most productive country in the region, producing an average of 80% of all output in SADC for the period 1990–2007 (119 papers per million of population compared to the regional average of 29 papers per million). Botswana was the second most productive country, with 96 papers per million, while Mauritius and Namibia were the only other two countries with productivity levels above the regional average.

[10] SARUA is a regional higher education and vice chancellors forum operating in the SADC region with a strong open access strategic focus. See: www.sarua.org/

Table 2.1 Ranking of SADC countries in terms of ISI papers per million of the population (2007)

Country	Total population millions (2007 est.)	ISI papers (2007)	Papers/million of population
South Africa	47.0	5,505	119.3
Botswana	1.8	172	95.5
Mauritius	1.2	47	39.1
Namibia	2.0	70	35.0
Zimbabwe	12.3	251	20.4
Swaziland	1.1	18	16.4
Malawi	13.6	209	15.4
Zambia	11.5	155	13.5
Tanzania	39.3	492	12.5
Madagascar	19.4	150	7.7
Lesotho	2.1	13	6.2

(Source: Mouton *et al.* 2008)

Despite concerns about the value of the ISI system (which we detail in Chapter 3), these indicators were useful in terms of categorising the study sites in relation to other SADC higher education institutions (HEI) and their apparent research productivity. The fact that SCAP was working with the four most research-productive HEIs in the region meant that we could explore correlations between size, output productivity and capacity in determining how feasible it was for regional institutions to profile the knowledge they produce. Though many differences exist between SADC institutions, if the most productive of these faced visibility challenges, then it stood to reason that the others would face similar problems, perhaps even more acutely.

Once the universities of Botswana, Mauritius and Namibia were nominated, SCAP reached out to their vice chancellors to propose a partnership. We sought to obtain senior management's mandate to engage with its academic community and to create the necessary buy-in for us to research this community's scholarly activity. Institutions were invited to designate research coordinators (RCs) – senior academics with an interest in open access practices – who would facilitate identification of pilot sites within the institution and to appoint research assistants to assist with data collection and other project work.

We believed that it was not feasible, given time frame and resource constraints, to research the scholarly communication practices of academics throughout the entire university; therefore we focused on pilot sites that were (hopefully) to act as microcosms of the institution, allowing us to extrapolate lessons learned and recommendations for sharing with the rest of the institution – and to other African institutions.

We realised that scholarly communication in these contexts would be impacted by varying institutional, disciplinary and cultural norms; we therefore always tried to remain clear as to which structural forces were doing the most to shape a particular

activity. While this minimised our capacity to generalise across all four sites in certain respects, it also allowed us to understand the diversity of these contexts and gain a nuanced sensibility about their challenges and opportunities. With this point in mind, the following served as our pilot sites:

- UB: Department of Library and Information Studies (DLIS) in the Faculty of Humanities (FoH) – 18 members
- UCT: Southern African Labour and Development Research Unit (SALDRU) – an independent research unit in the Faculty of Commerce (Comm) – 32 members
- UoM: Faculty of Science (FoS) – 55 members
- UNAM: Faculty of Humanities and Social Sciences (FHSS) – 77 members

SCAP approached each of the study sites as unique contexts with independent historical legacies and research communication cultures. Therefore efforts were made to ensure parity in project activity across the sites. However, the principal investigation (PI) team acknowledged that the approach to UCT would be slightly different because we were already "embedded" in the institution, a fact that both limited and expanded the kinds of insights we could gain about it.

Moreover, we understood that UCT was atypical in both Africa and Southern Africa. As the highest-ranked university on the continent[11] with a history stretching back to the 1820s,[12] UCT enjoyed significant financial, infrastructural and human capacity advantages over the other three universities. It also boasted a significantly larger academic staff: according to the most recent public figures, UCT[13] had 2,200 academic staff, UB[14] had 877, UNAM[15] had 340 and UoM[16] had 293. Nevertheless, these differences did not invalidate a comparison across institutions, but simply begged for continued recognition of the structural and historical differences that defined them.

The principal investigation (PI) team

SCAP research was led by a PI team based in the Centre for Educational Technology (CET), a department in the Centre for Higher Education Development (CHED) at UCT. This team comprised a research lead, a research officer, a research assistant, the programme manager and the programme director. All research work was undertaken in consultation with RCs at participating sites, but the ability of RCs to formulate and conduct independent research was constrained by the fact that they held academic posts with concomitant teaching and administrative loads. In addition, the RCs had been placed in the role because of their interest in the area, not necessarily their expertise. There was therefore significant capacity development entailed in the exchange between the PI team and institutional research teams.

---

[11] According to the 2012–2013 Times Higher Education World University Rankings, available at: www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/region/africa
[12] Ages of participating institutions – University of Botswana: 30 (founded 1982), University of Cape Town: 183 (founded 1829), University of Mauritius: 47 (founded 1965), University of Namibia: 20 (founded 1992).
[13] UCT (2012c)
[14] UB Facts and Figures (2013), available at: www.ub.bw/content/id/1989/Facts-and-Figures/
[15] SARUA profile of UNAM, available at: www.sarua.org/?q=uni_University%20of%20Namibia
[16] UoM: History (2011), available at: http://sites.uom.ac.mu/induction/index.php?option=com_content&view=article&id=46&Itemid=1

The SCAP programme was designed around four rounds of institutional site visits to each of the participating sites. These visits allowed the PI team to build institutional relationships, collect research data and formulate a framework for implementation activity. The PI team also gave presentations, ran workshops, conducted interviews and engaged in individual conversations with a wide range of stakeholders on each visit in order to stimulate discussion around scholarly communication.

The site visits also gave the PI team a more nuanced, ethnographic understanding of the lived reality of the pilot academics. Team members were able to see (and sometimes experience) first-hand the administrative, technological and social qualities defining scholarly communication activity at our partner sites. (For instance, by using the internet at some universities, we could see what scholars meant when they complained of low bandwidth; or by trying to source official information from certain universities, we could identify with their scholars' "red tape" woes.)

Methodology

SCAP's overall research design was based on the case study approach. We adopted this so that we could conduct in-depth research at four universities in four countries across different faculties and disciplines and so that we could experiment with a diverse set of intervention strategies. The case study approach allowed us to probe deeply into the different field sites (Flyvbjerg 2011; Mitchell 1984) while at the same time ensuring that some of our data would be comparable across them.

SCAP's methodological approach could be categorised as "developmental intervention-based research", as it went beyond a concern for only data collection to that of research as praxis, aiming to enable participants to understand and change their realities. To help develop capacity and stimulate our pilot environments, the programme incorporated implementation processes for experimenting with new approaches to open scholarly communication that ran alongside our research process.

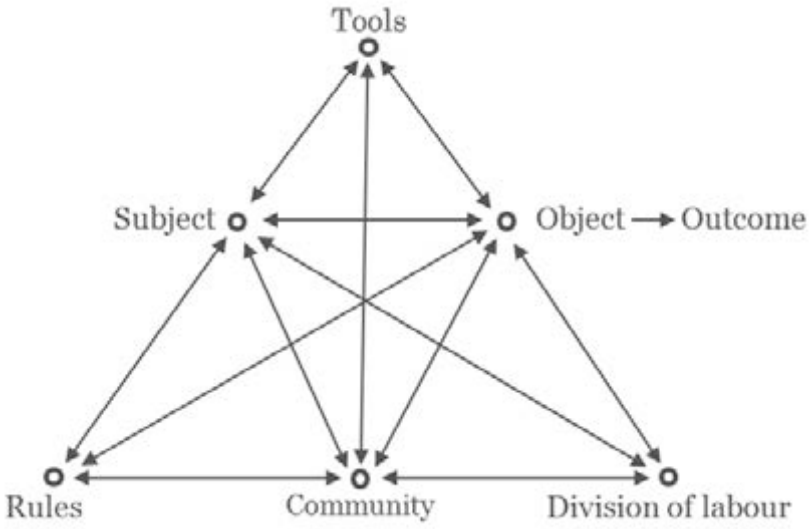
Cultural Historical Activity Theory (CHAT)

SCAP used Cultural Historical Activity Theory (CHAT) to inform our research approach. We chose CHAT because it is useful for identifying obstacles in complex activity systems, especially those that are structured by deep, complicated and sensitive cultural and historical elements.

With its origins in Soviet social psychology in the earlier part of the 20th century – in particular the work of Vygotsky and Leont'ev (Chaiklin & Lave 1993; Daniels 2008) – the key tenets of early Activity Theory is that activity is mediated action and that the social and the technical are mutually constituting. These tenets were then developed by Engeström (1987, 2000; Cole & Engeström 1993) into the CHAT approach that we utilised, which locates the activity systems concept at its centre.

An activity system is a collective formation in which a *subject* (here referring to a group, not an individual) acts purposefully towards the fulfilment of an *object* and a set of *outcomes*. Figure 2.1 shows a representation of an activity system with its constituent nodes placed at distinct points on the triangle.

Figure 2.1 Representation of an activity system in the CHAT tradition



The diagram above represents the different nodes that constitute an activity system. Starting with the top horizontal line, a *subject* seeks to achieve a purpose (the *object*) which will result in an *outcome*. In our research, the subjects were academics seeking to produce and disseminate research (the object) so that they could contribute to national development, secure promotion, comply with an institutional mandate, etc. (outcomes).

During this process, subjects utilise *tools* (the top node) such as computers, books, personal credentials and other artefacts to achieve their purpose. This means that all action is "mediated" by the use of such tools.

Along the bottom horizontal line are three further nodes that also serve to mediate action: rules, community and division of labour. According to Engeström (1996: 67), the *rules* refer to the explicit and implicit regulations, norms and conventions that enable and constrain action within a system. In our context, these *rules* were often disciplinary norms (informal) and institutional policies (formal).

The *community* comprises the people and groups sharing the same general object as the subject. In our context, these were typically funders, colleagues, librarians, managers and students.

Lastly, the *division of labour* refers to the horizontal division of tasks between members of the community and the vertical division of power and status. In the case of academics, the horizontal division involves relationships with peers (inside and outside the university) in the production and communication of research, while the vertical division involves relationships with research and university managers, as well as national research structures. The various non-academics listed in this node also have their own activity systems that are devoted to different objects. These other activity systems exist in fluctuating states of tension and alignment with the first activity system, depending on how they are structured and engaged.

A key virtue of this design is that it presents activity systems as "ecosystems", in which stimulation or change in one node leads to transformations throughout the entire system. For instance, the introduction of new tools (repositories, etc.) or the alteration of rules (policies, etc.) would impact the entire system. Thus, we thought of these activity systems as ecosystems that were unique, dynamic and sensitive to change.

CHAT principles

In CHAT theory, activity systems are defined by five key principles:

1. *Collective activity*: "A collective, artifact-mediated and object-oriented activity system is taken as the prime unit of analysis. Activity systems realise and reproduce themselves by generating actions and operations" (Engeström 2001: 136).
2. *Multi-voicedness*: "An activity system is always a community of multiple points of view, traditions and interests. The division of labour in an activity creates different positions for the participants [and] the participants carry their own diverse histories" (Engeström 2001: 136).
3. *Historicity*: "Activity systems take shape and get transformed over lengthy periods of time. Their problems and potentials can only be understood against their own history" (Engeström 2001: 136).
4. *Contradictions*: Instability (internal tension) and contradictions are the "motive force of change and development" (Engeström 1999: 381). "Contradictions are not the same as problems or conflicts. Contradictions are historically accumulating structural tensions within and between activity systems" (Engeström 2001: 137).
5. *Expansive learning*: "Activity systems move through relatively long cycles of qualitative transformations. As the contradictions of an activity system are aggravated, some individual participants begin to question and deviate from its established norms. In some cases, this escalates into collaborative envisioning and a deliberate collective change effort. An expansive transformation is accomplished when the object and motive of the activity are reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of the activity" (Engeström 2001: 137).

Change laboratories

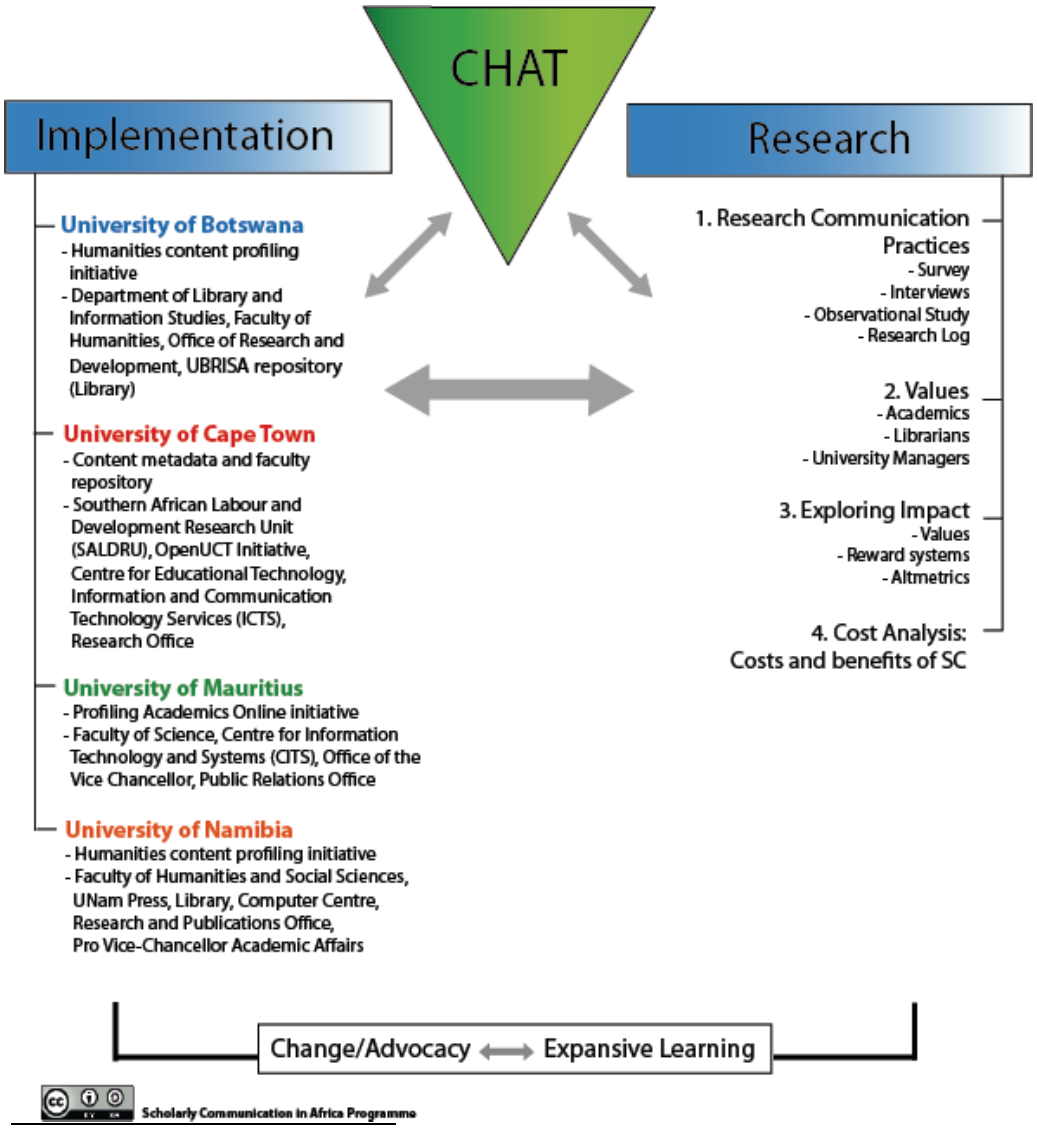
Key to the CHAT methodology are "change laboratories" (Engeström, Miettinen & Punamäki 1999). These are workshop-like events where participants collectively identify contradictions in their activity systems. In this manner, they explore interventions that would align those systems so they can better achieve their object. SCAP took it as axiomatic that each of our pilot sites had misalignments that could be identified and re-aligned so that they could operate optimally. For many change lab participants, the CHAT approach offered a useful method for comprehending the complexity of their scholarly communication ecosystems, inspiring them to look beyond technical (tools-oriented) solutions to their challenges and to consider them from the vantage of each

node and connection.[17] The knowledge we gained from our change labs was contextualised through data from our research strands. Together these generated rich descriptions of the conditions under which scholars conduct and communicate research.

Research components

SCAP's research comprised three interlinked components: expansive learning and change/advocacy; research strands; and implementation initiatives. These components are shown in Figure 2.2. With CHAT at the centre, the four research strands are listed on the right, the four implementation initiatives are listed on the left and the expansive learning element connects the two at the bottom. But as the arrows show, these were mutually constituting components, reflexively influencing each other as they progressed.

Figure 2.2 Diagrammatic overview of the SCAP operational approach



[17] SCAP's adoption of CHAT was unusual in that our study sites did not specifically request interventions around scholarly communication, as typically occurs with CHAT/change lab engagements. In fact, many participants only became aware of the contradictions in their activity systems by exploring them with us.

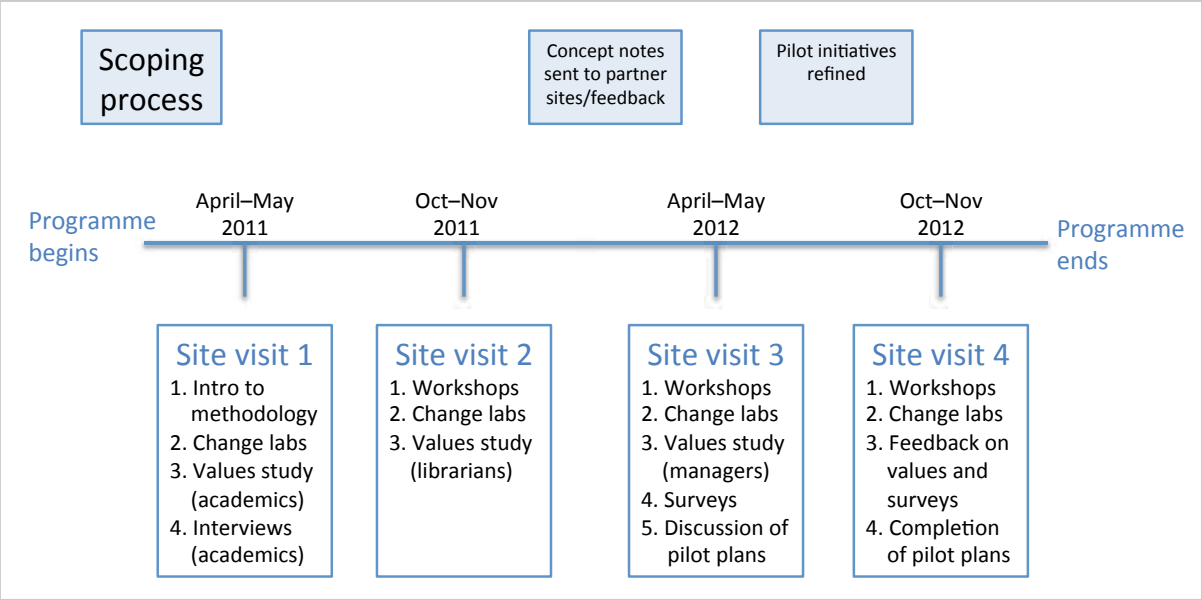
Expansive learning and change/advocacy

The expansive learning component involved SCAP's use of CHAT with its emphasis on conscious stimulation of and reflection on the scholarly communication activity system amongst staff members in each study site. This was implemented through iterative change laboratories, workshops and advocacy work. These CHAT "techniques" animated and integrated the other two components: the research strands that examined the scholarly communication ecosystem in each site and the technology implementation initiatives.

This research component involved rigorous documentation of the participatory processes involved in the change laboratories and site visits. SCAP tried to incorporate the analytical power of CHAT into every activity and interaction. But most pilot site participants' experience of CHAT was most keenly felt in the change laboratory workshops that we held at each institution. It was on those occasions that we explained the CHAT methodology and how its discursive tools could help us to elucidate the pilot site's scholarly communication activity system and develop an intervention that improved its functionality.

At each university, the change lab participants were typically members of the relevant pilot site, although university managers and librarians also attended sessions. Numbers varied between seven and 13, with a small core who participated throughout and others who came and went. The change lab workshops were full-day sessions, contributing to a broader research and advocacy programme during the PI team's week-long site visits. Figure 2.3 shows when we conducted the change labs and how this coincided with other research we were carrying out at the host institutions.

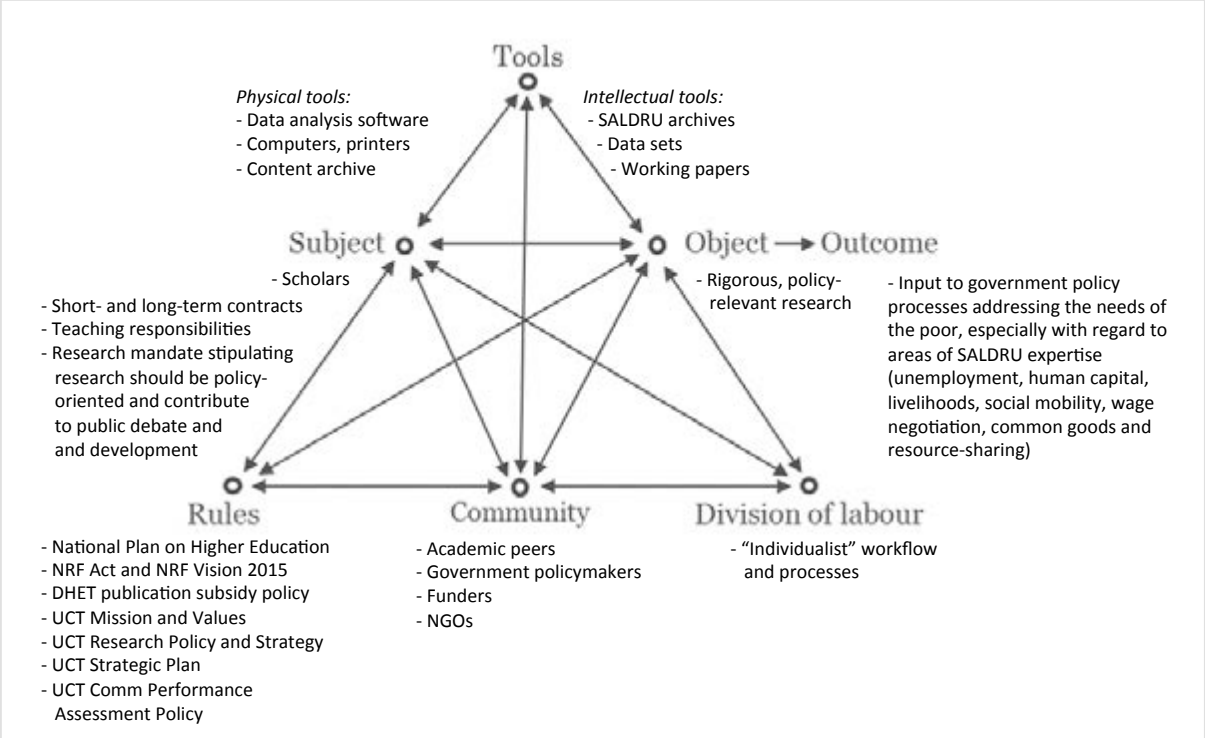
Figure 2.3 Overview of SCAP research and implementation schedule



In the first change lab workshops we held at each institution, we started by introducing the participants to the idea of scholarly communication as an activity system. We explored CHAT principles, discussed the virtues of the CHAT triangle as a heuristic and analytical device, and asked participants to identify areas where there were challenges or tensions in their scholarly communication ecosystems.

In the second workshops, we started populating the activity system triangles with the information given by the pilot participants, identifying the subject, object and outcome of the system, as well as the tools, rules, community and division of labour. Once all of the fields were populated, we started identifying the challenges, contradictions and opportunities within the activity systems so that we could understand where misalignments were occurring and how we could re-align them through an implementation initiative. The data from these workshops gave us a lot of the information we required to write up concept notes for the various implementation initiatives that we ended up pursuing. While most participants initially found this CHAT triangle process awkward, they quickly began to see its descriptive and explanatory power; however, once we established how each node was impact the others, it allowed them to see their work activity in a different light. Figure 2.4 shows a completed triangle.

Figure 2.4 UCT Comm activity system triangle populated with change laboratory material



In the third set of workshops we re-presented the fully populated activity system triangles so that participants could amend and verify them. The PI team also shared the concept notes for the implementation initiatives, eliciting useful feedback in the process.

In the fourth and final set of workshops the PI team presented preliminary findings from the research strands, which enabled a "mirroring" process (i.e. the final stage of the

expansive learning cycle implicit in the CHAT process). By "reflecting" scholars' activity systems to them in a descriptive and analytical fashion, we were able to secure crucial feedback from them for eventually arriving at our concluding findings (which are contained in this report). During that final visit, the participants also assessed the progress of the implementation initiative.

The change laboratory process provided significant data on each site's scholarly communication activity system and proved to be an invaluable forum for engaging with academics, librarians and managers.[18] For many, our workshops provided a much-needed space for participants to be self-reflexive about their scholarly communication activity. A number also took advantage of the episodic attendance of high-ranking managers to share their (often critical) perspectives with administrators with the clout to change policy.

As part of the expansive learning cycle, in addition to the change labs that we conducted, we collected institutional data through the many meetings, conversations and informal interactions we had with institutional stakeholders during our site visits.

Research strands

SCAP's research revolved around four strands: research and communication practice, values, impact and costs. Here we discuss the processes employed to carry out this research and how we integrated the materials in our analysis.

Research and communication practice

The primary question driving our research was "what is the current state of scholarly communication in Southern African universities?" To answer this, we utilised multiple research mechanisms to gather data – namely surveys, interviews, day-recalls, personal observations and informal conversations.

Because of the transformations taking place in the field of scholarly communication – due to changes in global research activity (Cooper 2009, 2011; Etzkowitz 2004; Gibbons 1997; Gibbons *et al.* 1994) and Web 2.0 technologies (Palmer 2005; Procter *et al.* 2010; Tenopir 2003; Thorin 2006; Weller 2011) – we felt it was important not only to establish baseline indicators for scholars' activities, but to examine their day-to-day practices.

We viewed the "practice turn" in the social sciences as offering us an approach that was compatible with our CHAT methodology in that practices can be seen as "arrays of human activity" that are materially mediated and "organised around shared practical understanding" (Schatzki 2001: 2, quoted in Palmer & Cragin 2008: 169).

We also built a "research and dissemination cycle approach" into our data collection instruments so that we could understand our research subjects' scholarly communication practices at each stage of the research and dissemination process. By breaking their activity down into discrete elements of a larger cycle, we believed we could identify how disciplinary norms, output genres, funding circumstances and personal values played

[18] All of our change lab workshops, seminars and formal meetings were digitally recorded and fully transcribed.

into their research and communication practices. It would also help us to identify possible contradictions in their activity systems, while pointing to potential opportunities for improvement. Furthermore, as Palmer (2005: 1140) states, "in the cycle of scholarly communication scholars play the role of both consumer and contributor of intellectual works within the stores of recorded knowledge." Hence we utilised Czerniewicz's (2013) research and dissemination cycle model because it incorporates an understanding of how open access and Web 2.0 technologies are transforming scholarly communication opportunities (which we discuss in Chapter 5).

In the context of that cycle, we also explored what enables or constrains the flow of scholarly communication by seeking to understand what difficulties scholars may experience with regard to access to and searching for scholarly work, as well as their dissemination choices.

This research strand therefore included quantitative and qualitative methods of data collection, aiming to produce "thick descriptions" of these practices in each of the study sites. We hoped to obtain "insider accounts" of African scholars' day-to-day practices as they went about producing, accessing and sharing research.

The first method that we used in this strand was a survey that was prepared with reference to the questions and findings from a number of international scholarly communication studies and surveys (Houghton, Steele & Henty 2004; Maron & Smith 2008; Palmer, Teffeau & Pirmann 2009; Procter *et al.* 2010; Rowlands, Nicholas & Huntingdon 2004; Rowlands & Nicholas 2006). In particular, we drew on Houghton, Steele and Henty's (2004) study, which focused on three key areas of research activity: communication and collaboration; information search and access; and dissemination and publication. We adapted these, however, to take account of our focus on the stages in the research cycle. The survey included the following categories of questions:

- General information
- Research and dissemination activity
- Collaboration and communication
- Information access and searching
- Forms of Web 2.0 engagement
- Faculty attitudes and support

At UCT, the SCAP research assistant administered the survey to 28 academics in the Faculty of Commerce. The data was coded and cleaned, entered and analysed within the PI team. The results are reported in Chapter 5.

The second research instrument we used was a semi-structured interview aimed at gaining a more granular feel for day-to-day research practices and what enabled or constrained them. The interviews covered:

- A discussion of their answers to the survey form
- Questions about the individuals' general background and history
- Narratives of three recent research projects or pieces of research that they had undertaken

At the same time, they sought to account for the social and organisational infrastructure within which research projects unfold, in particular the nodes in the activity system. In these narratives academics were encouraged to focus on the stages in the research cycle, such as:

- How the research started and what motivated it
- What it consisted of
- What enabled or constrained the production of outputs from the research
- What forms of interaction and networking were involved
- The uses of Web 2.0 technologies
- Dissemination choices (journal articles or other genres)
- Feedback on these outputs

The CVs of the interviewees were collected, analysed and viewed in relation to the scholarly shadows and footprints research undertaken as part of the third research strand.

The third research method we used in this strand was the "day-recall". This involved visiting a sample of the interviewees 24 hours after the first interview and asking them to narrate everything work-related they had done in those 24 hours, in order to elicit specific critical incidents that might shed light on what enabled or constrained research communication. In some cases this was repeated once more.

At UCT we conducted six interviews each lasting about an hour-and-a-half. The interviewees were all academics who were seen to be active researchers and who had some understanding of open access issues and of the affordances of Web 2.0 platforms for scholarly communication.

Table 2.2 Total number of participants in SCAP's formal research processes

Interviewees/participants	UB	UCT	UoM	UNAM	Totals
Survey respondents	29	28	30	50	**137**
Change lab participants [1/2/3/4]	12/7/11/11	10/10/7/8	13/8/4/7	13/9/11/11	**152**
Values interviews (academics)	13	6	14	13	**46**
Values interviews (librarians)	5	4	5	3	**17**
Values interviews (managers)	5	5	5	5	**20**
RCP interviews (academics)	5	6	6	7	**24**
Totals	**98**	**84**	**92**	**122**	**396**

Values

The second strand of our research explored the values motivating university academics to conduct and communicate research. Drawing inspiration from a number of recent attitudes and behaviours studies focusing on academics in the global North (Archer 2008; Harley *et al.* 2007; Harley *et al.* 2010; JISC 2012; King *et al.* 2006; RIN 2009,

2010; Rowlands & Nicholas 2005), we sought to understand the foundational values driving research production in the Southern African context.

At UCT, this entailed the PI team conducting focus group interviews with six academics, individual interviews with four librarians and individual interviews with five managers. This qualitative research was conducted during the course of the recurring site visits, with the focus group interview lasting about an hour-and-a-half and each in-depth individual interview lasting between 30 minutes and one hour. We recruited informants through convenience sampling (i.e. a process that is "convenient" for the researcher), typically relying on our research coordinator at the university to identify and contact the appropriate people for SCAP to engage.

For each category of university personnel interviewed, SCAP created a set of standardised questions (which were also asked at the other institutions), prompting respondents to reflect on their own and their institutions' research values. Through this, we were able to gather the data necessary for comparing scholars' values across the four universities we profiled. Below is the list of questions that interviewees were asked:

To academics (in focus groups)

- Why do you currently do research?
- Why would you want to do research?
- How much does our African context influence these motivations?
- Are there different motivations driving basic and applied research? Do you feel that these motivations change in a developing context?

To university librarians (individually)

- What role do you currently play in the scholarly communication process?
- What role would you like to play in that process?
- Does the African context influence the role you currently play, or would like to play, in this process?

To university managers (individually)

- Why do scholars at your institution conduct research?
- How does the African context impact their research motivations?
- What challenges do they face in fulfilling their motivations?

Through these questions, we sought to understand not only the values animating the production of local research, but how they were shaped by the African context and its various challenges and opportunities. The questions also formed the basis of sustained discussions concerning a variety of topics that organically arose through the respondents' reflections, such as university rewards and incentive structures, national development imperatives and consultancy work. This material generated data that was useful not only to our values research but to the other research strands as well.

In addition, we were able to obtain values-related information from our change laboratory workshops, surveys, day-recall sessions, interviews, implementation initiatives and personal observations gained through casual conversations and on-site

experiences. The fact that we were able to draw from multiple data sets, each with its own approach, was crucial for allowing us to get a comprehensive and complex view of scholarly values. The results of these values analyses are discussed in Chapter 5.

Impact

Academic research is one of the central concerns in a new, more accountable global academic environment. Traditionally conceptualised as peer-to-peer communication, the impact of a scholarly research object used to be tied solely to its importance in the academic community and not its importance in terms of socio-economic development. This has partly been a technological issue. Until recently the only quantitative measure of research impact was the Thomson Reuters ISI/WoS Impact Factor.[19] It was also due to an understanding of university practice as separate from the civil society and commercial world, and thus subject to a different set of rules. The professionalisation of the sector has brought with it interest from funders and governments about the demonstrable returns from investing in higher education (Power 1997; Raza 2009; Shore & Wright 1999; Strathern 2000).

Technological advancement in tracking tools now permits institutions to track a range of research object performance metrics, from traditional citation counts to downloads, bookmarks, page views and social media reports. Using these new methods, known as Altmetrics (alternative metrics), it is possible to obtain not just metrics and statistics, but to develop usage narratives that show how academic research is being used by civil society, making it possible to demonstrate the value of research to non-academic audiences and to track how it is being used. This information could help institutions to focus on refining their engagement with society, identify areas in which they are succeeding and determine where they could provide the most value to the community.

In order to experiment with Altmetrics in Africa, we initiated an output tracking exercise at our four study sites. Data was collected over a six-month period (May to October 2012) by research assistants at each site who were asked to acquire lists of publication outputs from their respective institutions. The data was examined to identify potential "impact narratives" as well as to identify any interesting or unusual characteristics.

This resulted in two policy briefs spearheaded by Cameron Neylon, a SCAP advisor:

Neylon C, Willmers M & King T (2014) *Illustrating Impact: Applying Altmetrics to Southern African Research*. Scholarly Communication in Africa Programme (SCAP) Brief No. 1 for the International Development Research Centre, January 2014, University of Cape Town. Available at: http://openuct.uct.ac.za/sites/default/files/media/SCAP_Brief_1_Neylon_et_al_Illustrating_Impact.pdf

Neylon C, Willmers M & King T (2014) *Impact Beyond Citation: An Introduction to Altmetrics*. Scholarly Communication in Africa Programme (SCAP) Brief No. 2 for the International Development Research Centre, January 2014, University of Cape Town. Available at: http://openuct.uct.ac.za/sites/default/files/media/SCAP_Brief_2_Neylon_et_al_Impact_Beyond_Citation.pdf

[19] Thomson Reuters, Journal Citation Reports, at: http://thomsonreuters.com/journal-citation-reports/

Cost-benefit

Our fourth research strand focused on the costs of scholarly communication in the African context, as well as the implications of moving to an open dissemination model. We saw this as a useful research effort because we wanted to be able to reduce a technologically and ethically complex proposal into a potentially simpler set of economic denominators that would allow institutions to judge the financial value of such a transition. We understood that for many institutions open access would only be of interest if it were cost-effective.

We explored a number of economic methodologies to help explicate the costs and benefits of African scholarly communication, namely Cost-Benefit Analysis, Cost-Effectiveness Analysis and Cost-Utility Analysis. The initially envisioned process was to uncover institutional financial data during the period October 2011–October 2012. However, the PI team, in consultation with the relevant RC, discovered that institutional financial reporting structures were insufficient for providing the granular detail required for any cost-utilising analysis. Moreover, data confidentiality concerns would have prevented it from being made available even if scholarly communication had been traceable through institutional reporting systems.

We therefore abandoned this line of research (because it was beyond the scope and capacity of the PI team and our partner universities) and instead focused on assessing the relationship between national development priorities, university mission commitments and open access strategies. This culminated in the production of an advocacy document lead by Alma Swan, a SCAP advisor, which showed how open access could support African institutions' desire to contribute to national development imperatives while preserving their intellectual patrimony through digital profiling and curation strategies:

Swan A, Willmers M & King T (2014) *Opening Access to Southern African Research: Recommendations for University Managers*. Scholarly Communication in Africa Programme (SCAP) Brief No. 4 for the International Development Research Centre, January 2014, University of Cape Town. Available at: http://openuct.uct.ac.za/sites/default/files/media/SCAP_Brief_4_Swan_et_al_Opening_Access.pdf

Implementation initiative

SCAP's research design called not only for the collection of data from our pilot sites, but for these sites' active stimulation through customised implementation initiatives (or "interventions") that sought to improve the state of scholarly communication within the sites. Five principle assumptions underpinned these initiatives. They would:

1. Be treated as experiments
2. Address a challenge articulated by project participants and institutional stakeholders
3. Be publishing-oriented, addressing content profiling and dissemination through new tools and technologies
4. Utilise open approaches (including open source software) wherever possible
5. Yield insights that could be extrapolated to the rest of the institution, developed in line with institutional strategy, e-infrastructure and international standards and protocols around interoperability

SCAP scoped and fulfilled the implementation initiatives during our four site visits to the institutions. The first visit aimed to surface the contradictions in the scholarly communication ecosystem, while the three subsequent visits sought to create consensus around the nature of the initiative, identify stakeholders and policy frameworks, and implement the agreed-upon pilot process.

While the formulation process was participatory, the PI team played a considerable role in interpreting and translating the desires of informants into a feasible intervention. This was due to two factors. First, while informants had a clear sense of institutional challenges, they were often unable to articulate desired solutions because they were unaware of the new technologies that might overcome these challenges. Second, the PI team also had the responsibility of protecting the funder's interests and ensuring that the implementation activity adhered to open access principles.

The Southern African Labour and Development Research Unit (SALDRU) served as the SCAP pilot site at UCT. After identifying its scholarly communication challenges, needs and desires, our intervention focused on revitalising its content curation management technology so that the unit's plethora of research outputs, which were produced over the course of more than two decades, would be curated and profiled in a way that made them highly accessible and visible. The results of this process are detailed in Chapter 6.

Integration and analysis of data

Through these multiple research strands, implementation initiatives and other information-gathering instruments, we were able to obtain a substantial amount of data for answering our two key research questions. To analyse the data, we utilised the inductive "grounded theory" approach and the "constant comparative" method. The process generally went as follows (although this was not uniform across all data sets):

- Reduce inputs to text (i.e. transcribe change labs and interviews, tabulate surveys)
- Identify and extract assertions from texts (listed initially according to research strand and university).
- Tag assertions with an intuitive notation system that allows us to keep track of their speaker, context of production and university affiliation.
- Code assertions according to thematic categories (which are derived organically from the data).
- Analyse (in narrow focus) meaning of assertions in relation to each other within their thematic category, research strand and university context.
- Frame (in widening focus) implications of assertions from one theme with those of others, helping them make sense of each other, but still within a given strand and university.
- Integrate analytical insights from research strands on a particular university (including from secondary literature and personal observations) to gain a nuanced and comprehensive understanding of the institutional scholarly communication ecosystem.
- Compare integrated analyses from each university, revealing similarities among and differences between the universities' scholarly communication ecosystems, thereby yielding a clearer picture of regional communication practices.

In between these steps, we also stepped back and embarked on a more deductive process, which involved checking our data against key concepts and insights in the relevant secondary literature, as well as exploring "hunches" based on immersion in the sites and the data, which were then tested against the developing themes and frames. This analytical process was largely carried out by the PI team, but once key insights and preliminary findings had been established, they were shared with participants in the pilot sites – especially the RCs – so that they could interrogate, amend or verify them.

Conclusion

Our research methodology ultimately combined a number of approaches so that we could obtain data at our pilot sites from multiple angles. We realised early on that no single approach would yield us the detail that we desired from the institutions; thus, we took multiple, overlapping approaches to the sites so that we could understand them in a comprehensive way.

The first element defining our multifaceted research approach was the fact that we engaged with the pilot sites as "case studies": that is, each of them comprised one of four sites in our broader research effort. Researching these different sites using similar methods and obtaining comparable data meant that they were able to contribute to our comparative synthesis report which offers a view of scholarly communication for the entire Southern African region (Trotter *et al.* 2014). Yet we never forgot that each of these sites bore their own unique histories, traditions and practices; therefore we sought to gain nuanced understandings of each site so that, when we compared them, we were able to grasp precisely where their similarities and differences were located.

The second element of our approach was our use of the CHAT methodology as our primary analytical device. This influenced not only the metaphors that we utilised to assess these sites – thinking of them as activity systems (or ecosystems) – but also the style of engagement that we had with participants. We deployed an important CHAT data-gathering device, the change laboratory, which allowed us to work with university stakeholders to identify contradictions in their scholarly communication ecosystems. In this way, participants were not simply research subjects, but were co-partners in our quest to understand and change their reality. Their "buy-in" to this process was critical to the success of the project as they took a degree of ownership in it.

The third element of our approach was that we were able to obtain a quantitatively rich description of our pilot sites, primarily through the 25-page survey that we had participants fill out, but also through various change lab exercises that we deployed during our site visits. This formed a crucial "objective" layer of data that provided a foundation for cross-comparison between sites.

The fourth element of our approach was that we were also able to obtain a qualitatively rich understanding of these activity systems through our interviews, day-recall sessions, conversations and observations during our four rounds of site visits. We believed that this layer of ethnographically informed information was crucial for us being able to understand the complexity of these sites.

The final element of our research approach, which ended up yielding a number of our more subtle and durable insights, was our use of implementation initiatives to stimulate the pilot sites' activity systems. Through these, we experienced first-hand the bureaucratic, political, social and technical challenges involved in operating in those environments. By bringing money and resources into our engagement, we initiated a much more complicated set of relationships than if we had simply operated as a research programme. This often led to significant discomfort on both sides, but it helped to reveal the "actual", as opposed to the simply "discursive", commitments that both sides brought to the relationship.

Chapter 3.
The University of Cape Town context

In this section, we will analyse the broader contexts shaping activity at the University of Cape Town. First, we will discuss the higher education context in sub-Saharan Africa so as to appreciate how the broader continental environment impacts UCT. Second, we will explore how the Southern African context reflects, and inflects, broader continental conditions with regards to higher education. Third, we will hone in on the South African national setting to understand the most immediate political context shaping UCT. And lastly, we will assess UCT's institutional context, which will give us greater insight into the faculty and unit discussions later. This four-tier nested approach – analysing the continental, regional, national and institutional settings – will allow us to locate more precisely which contexts shape the different elements of our pilot site's activity system. In each section, we will focus on the context's history, demographics, funding, human capital, infrastructure, research and management, giving us a detailed impression of each. Because this chapter includes a lot of information, readers should feel free to skip to the sections they believe will be most helpful for understanding the later analytical chapters. We have included this thick description here so that readers can have the necessary supporting information for grasping the complexity of this nested ecosystem. Thus it can be read now – drawing down from the macro to the micro – or consulted later as needed.

The African higher education context

One of the key challenges to understanding higher education in Africa is finding reliable, up-to-date statistics and information that render the continent legible for analysis. As Tijssen (2007: 304) states, even getting hold of standard data sets is "often problematic, mainly because official national statistics on magnitude and distributions of resources and research personnel are often missing, outdated, or the existing statistics fail to meet international quality standards and statistical manuals." This means that the image we paint of the higher education sector in Africa will be, to a certain extent, impressionistic rather than definitive. But the data that is available does provide a clear picture of certain challenges facing this field.

History

Higher education in sub-Saharan Africa is "mainly a post-colonial development" (Mamdani 2011a),[20] though a number of "colleges, university colleges and/or fully developed universities existed before independence in countries such as Sierra Leone, Ghana, Nigeria, Ethiopia, Uganda, Senegal, Rhodesia and Nyasaland … and South Africa" (Mouton 2010: 2). Many of these were established in the final years of the colonial period after World War II and were shaped as "an artifact of colonial policies" (Teferra & Altbach 2004: 2). These institutions trained up small numbers of students to serve in the lower orders of the colonial administration, emphasising subjects that were seen as appropriate to administrative work, especially in the humanities and social sciences.

With the majority of African states gaining independence in the 1960s, the new national governments took a strong interest in higher education institutions (HEIs) as agents of social change and development, leading to the conceptualisation of the "developmental university" (Ajayi, Goma & Johnson 1996). The extent of governments' interest was such that, according to Zeleza (2002: 10), "more schools and universities were established in the first 25 years after colonialism than in a century of imperial rule."

The key question at the time was: how do young universities contribute to "development" in a nascent independent context? Mkandawire (2011: 15) argues that "African governments tended to view universities as intended for the production of 'manpower' necessary to indigenise the civil service. And if they thought about research at all, they wanted research that was relevant to 'development and nation building'." Yet even with this seemingly narrow focus on producing graduates for the civil service (which in many respects reproduced the prior mission of the colonial powers to train up administrative functionaries), the calibre of the scholars that these institutions delivered was quite high. According to Sawyerr (2004: 226), "the 'first generation,' educated mostly in the 1960s and earlier, were generally trained to the highest international standards at public expense, both at home and abroad, and had embarked on academic careers under conditions that respected and provided adequate means for the cultivation of knowledge."

The rapid growth in tertiary education during this early honeymoon period, buoyed by government spending and a strong market for African raw materials, was later stifled by the economic crises of the 1970s that changed how governments and international funding agencies viewed universities on the continent (Mkandawire & Soludo 1998). The problem for many governments was that they "had no coherent development model", so government "steering" of the university turned into outright political "interference and universities became sites of contestation. States and academics became sceptical of the role of universities in development, and higher education came to be seen as a 'luxury ancillary' – nice to have, but not necessary" (Cloete, Bailey & Maassen 2011: xv). Sawyerr (2004: 226–227) argues that the African scholars who graduated during this period became part of a broader "brain-drain" to the West: "The 'second generation' came of age in the 1970s and early 1980s, when it was still common to supplement local degree work

[20] Mamdani (2011a) suggests that the reason why higher education was not developed more robustly during the colonial period was because, "Lord Lugard, Britain's leading colonial administrator in Africa, used to say that Britain must avoid the 'Indian disease' in Africa–that is, the development of an educated middle class, a group most likely to carry the virus of nationalism."

with graduate study abroad. But so harsh were economic conditions at home that almost anybody who could remain abroad after graduating did so."

As a long period of economic stagnation set in, African governments turned increasingly to the World Bank and the International Monetary Fund (IMF) for assistance and loans. These bodies began to impose serious conditionalities on those African states seeking debt relief, making them abide by Structural Adjustment Programmes that significantly reduced government spending.

In response, African governments made substantial cutbacks in tertiary education budgets (Harle 2010), which the World Bank saw as providing less cost-effective benefit than primary and secondary education (Bloom, Canning & Chan 2005). According to Cloete, Bailey and Maassen (2011: xv):

> *spending per student fell from USD6,800 in 1980, to USD1,200 in 2002, and later to just USD981 in 33 low-income sub-Saharan African countries. Lack of investment in higher education delinked universities from development, led to development policies that had negative consequences for African nations, and caused the closure of institutions and areas of higher education that are critical to development.*

This pervasive reduction of funding, resources and opportunities characterised almost two decades of higher education in Africa. Sawyerr (2004: 226–227), describing the generational cohort emerging from this period, states that:

> *by the mid-1980s, access to opportunities for study abroad, especially in Europe, had so diminished that most had to undertake their entire education, from first degree to doctoral studies, at home. This occurred at a time when the range and currency of library holdings, as well as the quality of teaching and research at most African universities, were in decline. It is this "third generation," currently staffing our universities, that has borne the brunt of these severe declines.*

African economies have largely recovered since that period, but the revival in the higher education sector has been challenged by rapid demographic growth within each country, especially by the number of secondary school-leavers who demand access to higher education (Teferra & Altbach 2004). But African governments, universities and international funding agencies have learned from the policies of the recent past, pledging to make higher education and research a greater priority moving forward.[21]

[21] According to Cloete, Bailey and Maassen (2011: xv–xvi), "During the 1990s and early 2000s some influential voices (including the World Bank) started calling for the revitalisation of African universities and for linking higher education to development. Ahead of the UNESCO World Conference on Higher Education in 2009, a group of African education ministers called for improved financing of universities and a support fund to strengthen training and research in key areas."

Demographics

Sub-Saharan Africa's population of 874 million is serviced by over 500 universities.[22] However, this is a relatively small number of universities to handle such a large population. According to UNESCO (2012: 2), "with its average gross enrolment ratio (GER) in tertiary education of just 6% … sub-Saharan Africa lags behind the rest of the world where ratios range between 13% in South West Asia and 72% in North America and Western Europe, though the ratios for most developing regions are between 20% and 40%." Moreover, due to the previous focus on primary and secondary education – combined with a rapidly growing continental population – massive numbers of school-leavers are seeking entry into higher education. In response, governments have placed significant pressure on universities to increase enrolment rates (Harle 2010) and to retain a greater portion of students in postgraduate education, such that these have become key figures for institutional and national-level reporting. With an annual growth rate of 8.4%, nearly twice the global average of 4.3%, the growth rate since 1970 has seen a 20-fold increase in the number of students enrolled (UIS 2010).

There are currently about 3 million students attending African HEIs. Unlike in the rest of the world, where females tend to enrol at a higher rate in tertiary studies than males, male enrolments in African HEIs remain slightly greater than female. The ratio between male and female students is about 1:0.68 (UIS 2010: 3). But this is changing as more females enter the sector each year.

The majority of students in sub-Saharan Africa attend public institutions, but a substantial number are now enrolled in private higher education institutions (PHEIs). According to Varghese (2009: 3), "private higher education is one of the fast expanding segments of higher education in Africa. In 2009, there were around 200 public and 468 PHEIs in Africa", although most of these institutions are small in size and in total account for less than one-third of total enrolments. The majority (53%) of these institutions are based in French-speaking areas of the continent (Varghese 2009), provide business-related courses and are located in urban areas. There is also a substantial number of faith-based PHEIs – the highest-growing component of PHEIs in the last decade (Karram 2011) – run on a non-profit basis and supported by international denominational bodies that provide higher education with a religious focus. These tend to be less market-driven than other PHEIs and offer liberal arts and humanities courses from a Christian or Islamic perspective.

Funding

The economic situation in many African countries makes it difficult for governments to provide increased funding for higher education (Teferra & Altbach 2004), even as student enrolments soar. Spending as a percentage of gross domestic product (GDP) ranges from 0.1% (Lesotho) to 0.9% (South Africa), averaging around 0.7%, though rarely coming close to the 1.3% that characterises the expenditure of high-income nations (OECD 2012). This means that with this level of spending, sub-Saharan African countries can only provide tertiary education to a tiny fraction of their citizens compared to

[22] For a list of all African HEIs (including North Africa), see: www.webometrics.info/en/Ranking_africa

developed nations (5% vs over 60%). In terms of total education expenditure, the legacy of underfunding for the higher education sector persists – most countries spend between 10% and 20% of their total education budgets on tertiary education, still focusing on primary and secondary education.

The lack of higher education funding has predictable consequences. Many African institutions lack adequate facilities, particularly laboratories and scientific equipment (Urama *et al.* 2010). Library subscriptions do not always cover the full range of publications desired by their academics. Scholars are often unable to pursue a broad range of research topics, especially those requiring international travel.

Tight funding can also result in relatively low salaries for the staff, which often encourages them to seek external sources of financial support, such as through private tutoring, after-hours instruction (at other private colleges) or consultancy research. For instance, consultancies offer resources that financially strapped institutions may not be able to provide and offer attractive stipends for work that is primarily quantitative and answer-orientated in nature (King 2006). Sometimes these consultancies contribute to national development (Sawyerr 2004), but according to Mamdani (2011b: 1), they can also divert from the construction of a long-term, sustainable research culture towards a market-driven, short-term and externally controlled research environment, where academics are reduced to "native informers". The level of external, private and international research funding may end up undermining African institutions' ability to set their own research agendas and nourish deep theoretical and intellectual research development. Despite this, most African universities want their academics to engage in consultancy work because it brings revenue into the institution.

The relatively low levels of higher education expenditure are mirrored by the low levels of research and development (R&D) expenditure across the continent. According to the African Science, Technology and Innovation Indicators Initiative (ASTII 2010: 8–9):

> *R&D activities in Africa are to a large extent financed by international donors and other foreign sources. Among the countries surveyed, Mozambique is currently the most dependent on foreign donors, in that more than 50% of its R&D is financed from abroad, followed by Mali (49.0%), Tanzania (38.4%), Senegal (38.3%) and Malawi (33.1%). By contrast, Nigeria and Zambia show very low dependence on foreign funding. In countries such as Ghana, South Africa and Malawi, the business enterprise sector accounts on average for 40% of R&D funding, while in most other countries its share of funding is less than 10%.*

Human capital

In conjunction with these financial challenges, most countries face both a relative and absolute lack of skilled professionals to drive development internally. They are able to staff their governmental and civil service bureaus, as was intended by the creation of the higher education system, but the best and the brightest often migrate abroad, seeking greater incomes, opportunities or political stability. This is the well-known "brain drain" phenomenon. The consequences of the export of African labour are not universally

negative (UNESCO 2012), but with up to 30% of African scientists lost due to out-migration (Crush & Pendleton 2012; Mouton *et al.* 2008; Te Velde 2005), African countries are forced to rely to a great extent on international "experts" for pursuing their development goals. It has also meant that many African institutions suffer from endemic staff shortages, as Tettey (2009: 13) relates:

> *Academic staff shortage has become a huge challenge for African universities, and no respite seems to be in sight. In fact, observers of the higher education scene on the continent unanimously identify this issue as one of the most critical challenges to the mission of these institutions. They contend that, if urgent concerted action is not undertaken soon enough to address the problem, the African academy will not only lose its ability to produce the requisite number of personnel to support the countries' human resource needs, but the quality of intellectual life will continue to erode.*

This is reinforced by low levels of postgraduate enrolment at African universities, a fact that threatens to prolong the continent's skills shortage indefinitely.

Infrastructure

The provision of various types of infrastructure across Africa – roads, buildings, electricity connections – is patchy, though universities tend to be located in better-resourced urban areas where certain basic standards are usually met. The key infrastructural challenge in the higher education sector is access to broadband internet.[23]

Compared to the developed world, internet access in Africa is frequently more expensive and at a lower bandwidth (Fuchs & Horak 2008; Harle 2010; Oyelaran-Oyeyinka & Nyaki Adeya 2004). Moreover, Africa's internet penetration percentage of 15.6% is less than half of the global average of 34.3%.[24]

However, the provision of broadband internet has improved significantly in recent years, particularly as a result of two new undersea fibre-optic cables[25] that were laid along the east coast of Africa in 2009. The establishment of national research and education networks – fibre-optic backbones dedicated to the academic and research sector – in many African countries has also served to extend internet provision and boost much-needed computation capacity for research. The UbuntuNet Alliance, established in 2006 as a central coordinating network for these network structures, has played a significant role in supporting the development of terrestrial broadband and interconnectivity

[23] Former UN secretary general Kofi Annan believes that ICTs have become such a core infrastructural component for full engagement with contemporary economies that "being cut off from basic telecommunications services is a hardship almost as acute as deprivation of jobs, food, shelter, health care, and drinkable water." Annan K (1999) Speech at the ITU Telecom Opening Ceremony. 9 October 1999. Available at: www.itu.int/itunews/issue/1999/09/telec99.html

[24] Internet World Statistics (2013) Internet Usage Statistics for Africa. Available at: www.internetworldstats.com/stats1.htm [accessed 26 February 2013]

[25] The SEACOM cable connects Djibouti, Kenya, Tanzania, Mozambique and South Africa to Europe and India while the TEAMs cable connects Kenya to the United Arab Emirates. These operate at a bandwidth capacity of 1,280 gigabits, dramatically increasing internet speeds as users connect to content that is typically hosted in Europe or North America.

between these national networks and with international networks outside the continent (Harle 2010).

Nonetheless, there is "a digital divide, not only between rich and poor countries, but also within nations" (InfoDev 2008: 23). Thus, within Africa, internet penetration can be as low as 1.1%, as it is in Ethiopia, or as high as 35% in Mauritius.[26] Within countries, urban populations often enjoy reasonable internet access with the widespread presence of internet cafes while rural access is far less common (Nyambura-Mwaura & Akam 2013).[27]

In academia, African universities have greatly improved their internet connectivity, albeit from a low base (Echezona & Ugwuanyi 2010), but they remain generally slower than universities abroad (Barry *et al.* 2008). The historically low levels of ICT provision have hampered the development of skilled ICT professionals at African universities, especially in libraries which should be at the forefront of the digital revolution (Mutula 2008). Students often have to deal with limited computing resources, broadband access and internet-use training, compounded by a lack of familiarisation with computers during primary and secondary schooling.

This low provision of bandwidth has limited scholars' engagement with online platforms that would enhance their academic profiles, broaden their research networks and open up new collaborative opportunities with scholars elsewhere.

Research

As discussed in Chapter 1, research production in sub-Saharan Africa has been growing over the last decade (at least with regard to ISI/WoS-rated journal articles), but it has been declining as a proportion of global outputs. This means that African research production is improving in absolute terms, but becoming less competitive in comparative terms. The positive increase is due to African governments' reinvestment in higher education as a site for development-enhancing activity. Moreover, many African universities have moved beyond their traditional teaching-oriented mandates to include research missions that encourage local scholars to produce more published outputs. They have also strengthened the size and profiles of their graduate programmes so as to build greater research capacity internally. This is a slow and uneven process, but these changing institutional norms are impacting every university on the continent.

In the sub-Saharan region, South Africa and Nigeria dominate WoS-listed research production (Adams, King & Hook 2010) while Tanzania is the most prolific producer in East Africa. Nevertheless, this research output is extremely low compared to that of the developed world; in 2008, the Netherlands alone produced approximately 27,000 ISI-ranked papers, nearly 50% more than the sub-Saharan total (Adams, King & Hook 2010).

Moreover, as Harle (2010) points out, substantial investment in journal access and associated areas of training and capacity-building has also raised Africa's research

[26] International Telecommunication Union (ITU) ICT Facts and Figures 2013, available at: www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
[27] For Africa bandwidth maps, see: www.africabandwidthmaps.com/

potential. Through donor-supported and collaborative initiatives, academics in many universities now have free or subsidised access to current and back issues archives. The Programme for the Enhancement of Research Information (PERii) has negotiated access to over 18,000 full-text journals (a further 7,000 are abstract only), while the Health InterNetwork Access to Research Initiative (HINARI) offers over 6,400; the Access to Global Online Research in Agriculture (AGORA) offers 1,278 and Online Access to Research in the Environment (OARE) offers over 2,990. While it is difficult to calculate the total number of free or discounted titles available to some African institutions, Harle (2010: 5) confirms that the total figure is certainly substantial, stating that "Kenyan libraries, which before the advent of affordable e-resources had collections averaging 3,000 print journals, now have an average of 35,000 titles via online access. Moreover, they have made average savings of 80% in their budget, while receiving over tenfold the number of titles."

Management

Historically, the strong interest taken by post-colonial African governments in tertiary education has led to a close (and sometimes contentious) working relationship between universities and their governments. This has often been due to competing notions of what role the university should play in society. While both parties have typically believed that the university should serve national development at some level, they have often disagreed about what constitutes "development" and the best means to achieve it. According to Lindow (2011: 89):

> *Universities strive to be partners to government in the name of development, but their relationship to the state is in fact complicated. If universities are indeed bound up in a pact with government and society, they must also shine a light of critical inquiry on the relationship between the two—a role which sometimes puts academics at odds with authorities, in Africa and elsewhere around the world.*

However, in many African countries where civil society remains generally weak and the local universities lack meaningful autonomy, higher education institutions often resemble branches of the civil service (training up workers and loyally supporting the government) rather than sites of independent and critical thought (an ideal that many scholars hold). Zeleza (2002: 16) critiques this situation, explaining that:

> *Governance structures often mirror those of the state, partly because, in many cases, senior university administrators are state appointees, who in turn appoint unit heads down the administrative hierarchy. The decision-making process tends to be discretionary and authoritarian, which is manifested through recruitment, screening, promotions, allocations of work loads, provision of leave and sabbaticals, scaling of staff, gate-keeping, policing and closures of campuses, surveillance, sexual harassment, and the administration of welfare facilities. Research is often enmeshed in patron–client networks, and it is employed as a weapon for punishing radicals, rewarding sycophants, and settling scores. Faculty is also sometimes*

> *humiliated and harassed through the use of accounting procedures. In short, authoritarianism, corruption and discrimination on ideological, intellectual, national, ethnic, religious and gender bases are quite widespread in institutions dominated by the academics themselves. This breeds censorship and encourages the "brain drain" of those, usually younger scholars, able to find greener pastures elsewhere, locally or abroad.*

The Task Force on Higher Education and Society (2000: 62) reinforces this picture of state-controlled institutions, stating that "with the government in many countries having assumed the power to appoint and dismiss the Vice Chancellor, governance in the universities has thus become a purely state-controlled system .... There are countries where even deans and department heads are also appointed by government and where heads of institutions change with heads of government."

That said, the structure and practices of university management do not derive from the example of national governments alone, but through the institution's constant comparison with and reference to international norms. The standards set by other universities have a powerful effect on how research agendas are set, how administrators evaluate academics and how they go about improving research productivity.

Conclusion

It is tempting to interpret this history negatively, as a period of lost opportunities and strategic mistakes. Indeed, we could provide significant evidence to support such a conclusion. As Zeleza (2002: 10) reminds us, "today, Africa remains the least educated continent in the world, able to provide higher education to only 3.5% of the college-age population, as compared with 60% in the industrialised countries."

Even more troubling, some scholars believe that education in Africa has irrevocably damaged Africans' psyches and "souls", a process started by the colonisers and continued by the inheritors of independent state power. According to Nyamnjoh (2012: 129–130):

> *In Africa, the colonial conquest of Africans – body, mind and soul – has led to real or attempted epistemicide – the decimation or near complete killing and replacement of endogenous epistemologies with the epistemological paradigm of the conqueror. The result has been education through schools and other formal institutions of learning in Africa largely as a process of making infinite concessions to the outside – mainly the western world. Such education has tended to emphasise mimicry over creativity, and the idea that little worth learning about, even by Africans, can come from Africa. It champions static dichotomies and boundedness of cultural worlds and knowledge systems.*

Nevertheless, it is worth remembering that, despite the ups and downs of this history, Africa has progressed significantly since independence, especially in terms of literacy:

> *Since 1960, the putative year of African independence, only 9% of the African population was literate, rising to about 50% three decades later. Taking the*

> *sub-Saharan region alone … enrolment ratios rose from 45% in 1965 to 74% in 1995 for primary schools and 5% to 35% for secondary schools. The rapid expansion of education not only led to a massive improvement in the African human capital stock, it also laid the institutional basis for the social production of African intellectual capacities, communities and commitments.* (Zeleza 2002: 10)

Africa's prospects have also drastically improved according to numerous other indicators:

- In 1960, there were only about a dozen HEIs that black Africans could attend, but in 2013 there were over 500.
- There has been a 20-fold increase in higher education enrolment since 1970 (Chien & Chiteng 2011: 6).
- While higher education was almost completely male-dominated at the end of colonialism, today the region enjoys substantial levels of female participation.

Education in sub-Saharan Africa is recovering from a long period of neglect and, along with many other institutions in the region, is experiencing considerable difficulties. However, the region is also taking important steps to improve the situation. One of the more impressive areas in this regard is Southern Africa, where conditions are such that they challenge any casual understanding of the "African context" and provide a greater appreciation for the diversity of circumstances on the continent.

The Southern African context

While within the geographical boundaries of sub-Saharan Africa, Southern Africa (here defined as the countries within the Southern African Development Community, or SADC) conforms to some of the above issues while deviating in others. Home to 14 countries[28] and 253 million people, the region hosts 54 universities and makes a significant contribution to continental research production (though only a marginal one to the global literature). As the four SCAP study sites were all located in Southern Africa, it is valuable to consider the region's specific context, both to avoid the all-too-common problem of writing about "Africa" as an undifferentiated, essentialised monolith and to develop a more concise understanding of the geopolitical environment in which the four study sites are located.

Southern Africa spans South Africa in the south to the Democratic Republic of Congo (DRC) in the north, and includes the south-eastern Indian Ocean islands of Madagascar, Mauritius and Réunion. It contains the continent's biggest economy (South Africa), its most innovative economy (Mauritius[29]) and the four most unequal countries in the world (Namibia, South Africa, Botswana and Lesotho[30]).

---

[28] SADC member states: Angola, Botswana, the Democratic Republic of the Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.
[29] Global Innovation Index 2013, available at: www.globalinnovationindex.org/content.aspx?page=data-analysis
[30] Kevin Lincoln (2011) The 39 Most Unequal Countries in the World, *Business Insider*, available at: www.businessinsider.com/most-unequal-countries-in-the-world-2011-10?op=1

History

Southern Africa follows the general pattern of post-colonial tertiary education development, with the significant exception of South Africa. While the majority of the region's universities were established after the 1960s, many of South Africa's most highly ranked universities were established in the first two decades of the 20th century. As such, the country has been a centre of academic excellence and attracts many students from throughout the region. These universities were able to avoid the crisis in sub-Saharan African higher education due to the presence of national funding capacity, a fact that has contributed to South Africa's regional dominance in research production.

Demographics

Southern Africa's tertiary enrolment rate was 6.3% in 2012, comprising 1.3 million students, 51% of whom were female (Wilson-Strydom & Fongwa 2012: 19). Within the region the gender profile is mixed: Lesotho, Mauritius, South Africa, Namibia and Swaziland follow the global trend of higher female enrolment, while the other SADC countries conform more to the general African trend for greater male participation in tertiary education. These figures are comparable with African higher education enrolment in general. The majority (84%) of tertiary education is based on contact-tuition (Wilson-Strydom & Fongwa 2012: 18) and is largely urban in nature.

Funding

Within the region there is a large differentiation in terms of national expenditure on education, which is not directly correlated with educational outcomes. Lesotho, for example, spends 13.4% of its GDP on education and fares second "in respect of the availability of scientists and engineers for research and development" (Richards 2008: 4) yet ranks lower than South Africa in terms of innovation, in 117th place vs South Africa's 54th (Global Innovation Index 2012).

Research funding in the region is generally low, and heavily dependent on international funding agencies:

> *A very substantial 42% of all respondents from SADC (RSA excluded) indicated that they source between 70 and 90% of their research funding from overseas compared to only 6% of South African respondents. The responses very clearly show the dependence of SADC scientists on international funding for their research; and conversely how little domestic funding is available for research. We should also point out that this picture is even worse if one keeps in mind that the scientists in our sample were identified because they are the most active and productive scientists in their fields in their countries.* (Mouton 2010: 23)

Excluding South Africa, which spends 0.9% of its GDP on R&D (DST 2013), the average regional expenditure is closer to 0.3%. Institutions themselves often struggle to provide sufficient funding for their academics' proposed research budgets, contributing to short-term, introspective and derivative research work.

In such a funding environment, consultancies offer an attractive alternative for researchers struggling with inadequate institutional and national funding systems, and "more than two thirds of all academics in the fourteen SADC countries regularly engage in consultancy" (Mouton 2010: 15). As with sub-Saharan Africa in general, the influence that consultancy work exerts on Southern African research agendas can be seen in both positive and negative lights – offering on the one hand the opportunity to conduct well-funded and relevant research, while on the other taking time away from basic or theoretical research, and locating executive control over the region's research agenda outside of the academic community itself. Even national governments have comparatively little control over the shape of public science (Mouton *et al.* 2008).

Human capital

The "brain drain" problem so common in sub-Saharan Africa is also felt in Southern Africa, but with the caveat that, along with international emigration, there is also a good deal of intraregional migration, mostly to South Africa. Student migration can be as high as 87% and 65% in Botswana and Namibia, respectively, while "South Africa has the highest inbound mobility rate with nearly 50,000 foreign students studying in the country in 2005" (Mouton 2010: 20).

The brain drain phenomenon has historically been driven by multiple factors, including the declining quality of life across Africa from the late 1970s to the early 1990s, the lack of knowledge-intensive industry to provide desirable employment, the deterioration of the higher education sector, political instability and the lack of local postgraduate programmes (Barclay 2002; Mouton *et al.* 2008).

Infrastructure

Although SADC has the "most pervasive regional terrestrial fibre network" (SADC 2012: 27) on the continent, its access to and use of bandwidth is relatively low compared to global standards. "An average of only 4% of the SADC region's population are internet users today" (SADC 2012: 21). "These generally low levels of internet penetration, are partly the result of the high cost of access, combined with low income levels, and the lack of fixed line infrastructure, combined with the relatively short period that lower cost wireless internet services (mainly 3G and WiMax) have been available in major urban areas" (SADC 2012: 22). Furthermore, with regards to the average growth in internet penetration, the SADC region is "falling behind compared to the rest of the world (although it is ahead of the average for Africa as a whole)", with the "region being almost 10 years behind the world average" (SADC 2012: 22).

In contrast to the low level of internet users, mobile telephony usage rates are quite high. "Encouraged by the early introduction of prepaid services (which now account for 80–90% of subscribers in the region), mobile uptake stood at an average of 60% of the population in 2010" (SADC 2012: 18). However, this figure "obscures fairly large variations (about 5 times) between SADC Member States, with the DRC and Malawi at only around 20% penetration while Seychelles, Botswana and South Africa are over 100% (due to the use of multiple SIM cards)" (SADC 2012: 18).

While the universities that we profiled enjoyed reasonable access to the internet and could enhance their scholarly communication activities even with their present level of access, the low levels experienced by other members of the population decreased the educational potential of the internet, especially at the basic education level.

Research

Although Southern Africa research production is impressive by continental standards, most countries in the region still produce fewer than 1,000 ISI/WoS-ranked publications per year, with only Tanzania and South Africa producing more prolifically (Kotecha, Walwyn & Pinto 2011). Productivity per full-time-equivalent (FTE) researcher varies across the region, ranging from Namibia and South Africa producing close to 0.8 WoS-ranked publications per researcher per year and Botswana and Zimbabwe averaging close to 0.6 per researcher per year, to the DRC, producing very little ranked research (Kotecha, Walwyn & Pinto 2011). Even the higher performing countries in the region underperform relative to the developed-country average of 1.2–1.5 WoS articles per FTE researcher per year. Within the region, South Africa dominates: of the approximately 11,000 research publications reported in the region in 2009, some 9,000 were produced by scholars in South Africa.

PhD qualifications are another metric of national research development. In 2010, the region produced 1,546 doctorates, of which only 125 were outside South Africa, which "accounts for 89% of PhDs in the region" (Kotecha, Walwyn & Pinto 2011: 12). Aside from Mauritius and South Africa, which produce between 0.3 and 0.4 PhDs per FTE researcher per year, the production of new doctorates is very low. In general, the education profile is biased towards undergraduate studies, as explained by Wilson-Strydom & Fongwa (2012: 38):

> *The regional graduation profile is even more heavily skewed towards undergraduate qualifications, with 79% of graduations being at the undergraduate level, 15% at postgraduate level, 6% at the masters level and only 1% at doctoral level. If the South African data are removed, the proportion of undergraduate graduations increases to 88%, postgraduate graduation below masters level is 5%, and masters and doctoral qualifications together represent 5% of the total.*

South Africa's dominance in PhD production is partly due to internal intellectual migration. As many universities lack capacity for postgraduate supervision, South Africa is an attractive destination for regional postgraduate students. As PhD qualifications are strongly correlated with research production (Cloete, Bailey & Maassen 2011), the region's lack of endogenous PhD development is therefore a negative factor in intensifying research, especially the development of local epistemologies.

Management

In many Southern African countries, the establishment of national universities coincided with independence and was one of the markers of a functioning, independent nation-state. In this environment, "the major purpose for establishing universities in these countries was, and still is, for the institutions to play a pioneering role in addressing problems of poverty, social disorganisation, low production, hunger, unemployment, illiteracy, disease, that is, the problems of underdevelopment" (Mosha 1986: 1).

As such, universities (especially in single-university countries) have always been strongly aligned with national governments. Academic freedom was even seen in some cases as "a petty bourgeois claim, a sort of luxury that poverty- and crisis-ridden societies cannot afford" (Sall 2001: 1). Yet this remains a situation in flux, as academics continue to voice concerns about the perceived detrimental effects of government interference in the academic enterprise, calling for universities to exert greater control over their own work.

Conclusion

As this brief description of the Southern African context makes clear, the region shares many of the features of the continental higher education picture, yet diverges from it in significant ways as well. This is mainly due to the presence of South Africa, an outlier that skews the numbers and generates substantially more capacity and opportunity for the region compared to what the continental figures would suggest. However, the small population sizes and high levels of political stability in the other countries SCAP profiled (Botswana, Mauritius and Namibia) have also made the region a more robust and productive educational environment, comparatively speaking. With this in mind, we can now turn to the national context shaping this particular partner university.

The South African context

South Africa has the strongest economy on the continent, though unemployment is high (at roughly 25%) and it still performs poorly on the Human Development Index (0.629). Its considerable mineral wealth and the strength of its industrial and manufacturing sector have not resulted in uniform economic development, due largely to the country's history of racial discrimination. The result is a dual economy where considerable wealth exists alongside stark poverty, broadly delineated along racial, class, and urban–rural lines. South Africa's colonial, industrial and liberation history sets it apart in many ways from its regional and continental neighbours, while also tying them together. Bentley, Habib and Morrow (2006: 10) describe the country's ambiguous place in Africa:

> *Discussion of South Africa and Africa is always a delicate affair. South Africa is different in some respects to the rest of Africa, because of its history, its economy and the unusual composition of its population. The possibilities of mutual misunderstanding and resentment on both sides of the Limpopo are many. But South Africa is also an African country. Therefore it is legitimate to look at the rest of the continent and to consider South Africa as subject to many of the same forces and influences that have played and are playing on societies to the north.*

South Africa's higher education system substantiates this ambiguity, as portions of it (including UCT) resemble the well-resourced universities of the global North, while other portions (such as the former Bantustan universities) face challenges that resemble those in other parts of Africa. South Africa's "differentiated" higher education system allows for these contrasting institutional realities, creating a diverse set of experiences for both scholars and students.

However, since the end of apartheid, the country has made great strides in opening higher education access to the entire South Africans population. According to the National Planning Commission (NPC) (2012: 317):

- Enrolment in HEIs increased from 490,494 students in 1994 to 837,644 in 2009 – a 71% increase.
- There have been significant demographic changes in student population: two thirds of university students were African in 2009 compared to a third in 1990.
- Student financial aid increased from ZAR10.3 million in 1994 to ZAR2.7 billion in 2010.
- University research output increased from about 5,500 [ISI-rated journal articles] in 2003 to 9,600 in 2010.

These achievements are impressive, but they mask a number of persistent challenges that continue to shape the higher education system, which will be made clearer below.

History

South Africa has one of the longest continuous histories of tertiary education on Africa, with the universities of Cape Town and Stellenbosch having been granted full university status in 1918 after decades of prior higher education provision. However, due to the racial discrimination and systemic underdevelopment of certain areas stemming from colonialism and apartheid, the tertiary education landscape that developed was quite diverse in terms of institutional character, quality and mission. That diversity remains the case today. Though the higher education sector has been streamlined and rationalised a great deal since 1994, the government has tried to make the diversity of the sector a virtue. According to Bailey, Cloete and Pillay (2012: 21), "there are three categories of universities in the country presently: 11 universities (those institutions that were defined as such during the apartheid period and remain so); six universities of technology (the former technikons or technical universities); and, six comprehensive universities (which are merged universities and technikons)."

But the NPC makes it clear that these 23 universities are struggling to keep pace with the needs of the country.

> *South African universities are mid-level performers in terms of knowledge production, with low participation, high attrition rates and insufficient capacity to produce the required levels of skills. They are still characterised by historical inequities and distortions. The university sector is under considerable strain. Enrolments have almost doubled in 18 years yet the funding has not kept up, resulting in slow growth in the number of university*

> *lecturers, inadequate student accommodation, creaking university infrastructure and equipment shortages*. (NPC 2012: 317)

However, the differentiated higher education structure has meant that these challenges have impacted South African universities differently, in many ways reinforcing inequalities that were established during apartheid. That may be slowly changing with the expanded roles of the former technikons, though.

> *The distribution of research capacity in higher education institutions is skewed in favour of historically white institutions. Under apartheid, the development of research capacity in black universities was severely limited, and they have only recently integrated research into their core functions. A research mandate has only recently been included in the institutional missions of universities of technology*. (NPC 2012: 326)

In this way, South Africa's higher education system is both an aberration from and a close replica of the higher education landscape in other parts of the continent, combining both strong and weak educational structures.

Demographics

According to the Department of Higher Education and Training's (DHET) *Green Paper on Post-School Education* (DHET 2012a: 37):

> *The 2011 preliminary student head count for the 23 universities was 899,120, which includes both full-time and part-time enrolments for contact and distance study. (The figure for 1994 was 495,356. This represents an increase of almost 82% since the advent of democracy.) … For 2009, 82% of the total head count enrolment was at undergraduate level, while 5% were masters students and 1% were PhD students.*

While the vast majority of these students are South African citizens, a good percentage also comes from other countries, especially SADC countries. According to the DHET (2012a: 51):

> *In 2010, 66,113 foreign students were studying in South African universities. The vast majority (46,191 or 70%) were from countries belonging to the Southern African Development Community (SADC); most of the remainder (11,130) were from other African countries. In addition 3,653 came from Europe, 1,813 from Asia and 1,737 from North America. The remainder were from Australasia/Oceania, South America or were of unknown origin.*

In total, "South Africa's current participation rate in higher education, at 16–17% of the relevant age cohort (18–24 years old), is substantially higher than the average for sub-Saharan Africa (around 6%)" (Bailey, Cloete & Pillay 2012: 22).

Table 3.1 South African indicators

Population	51 million[31]
Size	1,221,037 km² (twice the size of France)
Public universities	23 (±900,000 students)
Human Development Index	0.629 (ranked 121 of 187 countries)[32]
Gini coefficient	63.1[33]
Gross National Income per capita	USD6,960[34]
Gross Tertiary Enrolment Ratio	16–17%[35]

Funding

In 2011, 2.47% of the government's total expenditure went to higher education, amounting to 0.75% of national GDP.[36] The sector is funded through two mechanisms – an amount earmarked for specific expenditure as dictated by the government, and a separate block grant over which the universities themselves have discretion (DHET 2012b). Over the past decade, the percentage of funding provided as block grants has steadily been decreasing, from 88% in 2000 to 74% in 2011. Nevertheless, the majority of government funding is not earmarked for specific expenditure and universities retain control over the majority of their expenditure. Universities also receive funding through student fees and accommodation charges, as well as through private donations (Bailey, Cloete & Pillay 2012).

Moreover, unlike in some African countries where universities are penalised for raising external funding, HEIs in South Africa "are free to generate 'third-stream' income through, amongst others, research and entrepreneurial activities. Such third-stream income constituted 23% and 27% of total revenue in 2004 and 2007, respectively" (Bailey, Cloete & Pillay 2012: 24).

Human capital

While South Africa's higher education system fares well compared to many other Southern African countries, it is struggling to keep up with its own needs. According to the NPC (2012: 316), "the South African post-school system is not well designed to meet the skills development needs of either the youth or the economy. Approximately three

[31] World Bank statistics, South Africa, available at: http://data.worldbank.org/country/south-africa
[32] UNDP International Human Development Indicators, available at: http://hdrstats.undp.org/en/countries/profiles/ZAF.html
[33] UNDP 2013, Human Development Report; Statistics available at: http://hdr.undp.org/en/media/HDR2013_EN_Statistics.pdf
[34] World Banks statistics, available at: http://data.worldbank.org/indicator/NY.GNP.PCAP.CD/countries/ZA-ZF-XT?display=graph
[35] See Bailey, Cloete and Pillay (2012: 22)
[36] Financial and Fiscal Commission (2012) FFC 2013/2014 Technical Report. Johannesburg: FFC, p. 58. Available at: www.ffc.co.za/index.php/component/docman/doc_download/364-2013-2014-technical-report?Itemid=

times as many students enter universities each year compared to those entering colleges. In 2010, universities enrolled around 950,000 students while colleges enrolled about 300,000."

This imbalance at the student level is now being matched at the academic level, as the aging staff cohort fails to be replaced by enough younger academics to cope with the rising student numbers:

> *The total instruction and research staff complement for the 23 universities was 16,320 in 2009. Of this, 44% are women. However, at the higher end of the academic ranks, there are four times as many male professors as female professors. The age breakdown of instruction and research staff at these institutions is worrying. In 2009, almost 50% of staff were 45 years old or above. This shows that we have an aging academic population. Moreover, almost 55% of all permanent, professional staff at universities are white, while Africans make up less than 30%. Furthermore, the rapid expansion of the university sector in terms of enrolment has not been accompanied by an equivalent expansion in the number of academics. This means that academic staff experience rising workload pressures due to increased teaching loads. Although academic salaries in South Africa are comparable to salaries elsewhere, as demonstrated by a recent Commonwealth study of academic remuneration, they are below what similarly qualified people can earn in the private sector or government.* (DHET 2012a: 45)

Thus, "despite the obvious progress with regards to the numbers of doctoral graduates, with 26 doctorates per million of the country's total population, South Africa lags far behind countries such as Portugal (569 PhDs per million), the United Kingdom (288 per million), Australia (264 per million), the United States of America (201 per million), Korea (187 per million) and Brazil (48 per million)" (DHET 2012a: 42). Currently, 34% of higher education sector staff in South Africa have PhDs (NPC 2012: 319).

Infrastructure

South Africa has the best equipped and most modern ICT system in Africa, with more than one mobile phone per person and high bandwidth capacity. There are large discrepancies in the distribution of these communication resources, with the urban areas being comparatively well resourced, while rural areas in poorer parts of the country have less access. There are 4.127 million fixed telephone lines in operation (less than 10 per 100 population) and 64 million phones in the country of 51 million people.[37]

[37] IndexMundi, South Africa Telecommunications Profile 2013, available at: www.indexmundi.com/south_africa/telecommunications_profile.html [accessed 3 December 2013]

Research

South Africa is the dominant producer of research in Africa, contributing more than 80% of the SADC region's (ISI/WoS-rated) research. The Academy of Science for South Africa (ASSAF) sums up the country's contemporary situation regarding "high-impact" academic research publications:

> *South Africa occupies the paradoxical position in the arena of research publishing of being a dwarf internationally and a giant on the African continent. About 3,500 listed papers with at least one South African author address were published worldwide in 2000, representing about 0.5% (5 in every 1,000) of all papers in the three major databases of the ISI system, which covers over 5,500 selected international journals in Science, Engineering and Medicine, 1,800 in the Social Sciences, and 1,200 in the Arts and Humanities. South African research journals constituted only 19–23 (depending on the year) of the indexed journals on the combined databases in 2002 (0.2%, or 2 in every 1,000) containing about 350 papers of the ISI total for the country (1 in every 10), and the rest of Africa, only 2. South Africa's share of world citations in this database was 0.31 (just over 3 per very 1,000) for the period 1997–2001, while only 0.15% (1.5 per 1,000) of the 1% of top-cited articles had one or more South African addresses. Altogether, about 7,000 research articles are published annually from South African addresses in ISI-indexed journals or in un-indexed journals accredited by the Department of Education. Recent surveys of the South African Science and Technology (S&T) indicators put the total number of potentially publishing researchers in the country at about 16,000. The active researchers in this group are the producers of the 3,500 ISI-listed papers per year mentioned above, as well as the approximately 3,500 that are not so listed but are accredited by the DoE. In summary, 16,000 researchers publish about 7,000 papers a year, or on average about 0.4 papers per researcher per year.*
> (ASSAF 2006: xiii)

This research occurs in a diverse national research infrastructure characterised by a "differentiated" strategy at the education and research levels. "There are multiple sites of research and knowledge production, which are partly or wholly separated from higher education: in industrial laboratories, government departments, corporate research units, parastatals, statutory research councils and NGOs, or through collaboration between these organisations" (NPC 2012: 326).

However, the higher education sector is growing in importance within this research activity: "From 1995 to 2007, the proportion of all scientific output produced by universities increased from 80% to 86%, which means that universities are increasing their dominance as knowledge institutions in South Africa" (NPC 2012: 325).

Management

The DHET is responsible for managing the higher education sector in South Africa. It not only oversees the 23 public universities and 50 Further Education and Training (FET) colleges and various Skills Education and Training Authorities (SETAs), but also looks after other key parts of the national research infrastructure, including:

- Human Sciences Research Council (HSRC)
- National Research Foundation (NRF)
- Agricultural Research Council
- Council for Scientific and Industrial Research (CSIR)
- Council for Geoscience
- Medical Research Council

These bodies promote research production in their fields and also provide funding to researchers and research entities. For instance, in 2012, the NRF awarded grants worth ZAR208 million to UCT and its researchers. This comprised "766 grants at an average grant size of R271,540" (UCT 2012a: 27).

The key point to make here is that South Africa enjoys a diverse and comparatively well-resourced national research infrastructure, consisting of numerous councils, foundations, agencies, commissions and funds. This diversity gives university scholars multiple points of engagement for seeking research funds or project opportunities. It also creates a supportive atmosphere for all sorts of research activity, whether large or small. Though the country's capacity is far less than that of developed countries, it is still larger than the capacity of any other African nation.

The University of Cape Town context

Located at the southwest tip of the country in Cape Town, UCT is one of South Africa's oldest and most prestigious universities. It is one of the most prolific producers of research output in the country and occupies an elite position within the differentiated higher education system.

History

UCT's history goes back to 1829, when it was a high school for boys called the South African College. It was promoted to full university status in 1918. Historically a largely white institution, during apartheid it was considered a site of intellectual resistance by the state – the university was colloquially known as "Moscow on the Hill", a suggestion that the hillside campus was a hotbed of communism and anti-apartheid protest.[38] Since 1994, UCT has sought to maintain its commitment to academic freedom and research excellence while expanding its access to students from disadvantaged backgrounds and participating in the state-directed "transformation" of the higher education sector. This has occurred while it has also sought to educate more students from across the continent.

[38] UCT, Our History, available at: www.uct.ac.za/about/intro/history/

Demographics

With a student population of almost 26,000, academic programmes at UCT emanate from six faculties (listed in Table 3.2), spread across its five campuses in the city.

Table 3.2 University of Cape Town indicators

Faculties	Commerce Engineering and the Built Environment Law Health Sciences Humanities Sciences
Academic staff numbers	2,200
Academic:Administrative staff ratio	44:56[39]
Enrolment	25,864 (8,249 of which are postgraduates)
Student:academic staff ratio	12:1
Female:Male student ratio	50:50
Total expenditure	ZAR1.791 billion[40]
Total research income	ZAR841 million[41]
Number of ISI-Index journal articles (2012)	1,124[42]
Library volumes	1.3 million volumes
Print journal subscriptions E-journal subscriptions Academic databases	16,700 72,000 190
International rankings: Times Higher Education (THE) Quacquarelli Symonds Shanghai Jiao Tong University Webometrics	 113 (2012) 145 201–300 390 (2nd in Africa)

Funding

Of UCT's total operating budget income in 2011, ZAR1 billion came from state appropriations (subsidies and grants), ZAR735 million came from student tuition and

[39] UCT Statistics, available at: www.uct.ac.za/about/intro/statistics/
[40] UCT Facts & Figures (2013), available at: www.uct.ac.za/downloads/uct.ac.za/about/aboutuct_2012-13.pdf
[41] Ibid.
[42] UCT Research Statistics, available at: www.researchoffice.uct.ac.za/publication_count/stats/

fees, ZAR117 million came from the sale of goods and services and ZAR23 million came from private gifts and grants.[43]

In addition to this, "total research income was ZAR841 million in 2011"[44] of which "Research contracts to the value of ZAR682 million were processed" (UCT 2012a: 17). "ZAR90.26 million were entered into with South African government departments, public enterprises and statutory bodies in 2012. South African science councils, national research centres and non-profit entities accounted for ZAR48.5 million of signed contracts, whereas contracts with South African industry were valued at ZAR111.4 million. Major South African industry partners include the Eskom Group, Anglo Group, Old Mutual, Rustenburg Platinum Mines, and the Sasol Group" (UCT 2012a: 27).

According to the UCT Research Report:

> *At an international level, 572 contracts to the value of ZAR431 million were entered into with entities from 48 countries. The major source of foreign funding is the USA (R211.8 million), followed by the United Kingdom (R82.6 million), Canada (R35.6 million), Belgium (R23.5 million), and the Netherlands (R22.5 million). The most prominent funder of research in 2012 was the National Institutes of Health, and contracts to the value of R73.3 million were, directly or indirectly (through collaboration with USA universities), entered into. Contributions through the Bill and Melinda Gates Foundation amounted to R40.7 million and the Aeras Global TB Vaccine Foundation contributed R37.4 million. The Medical Research Council, with contracts to the value of R28.8 million, was the major United Kingdom contributor, followed by the Wellcome Trust (R24.5 million). Contracts to the value of R21.6 million and R19 million were respectively entered into with the European Commission and the European and Developing Countries Clinical Trials Partnership, which operates from the Netherlands. Canada's main contributor was the International Development Research Centre, with contracts to the value of R17.4 million.* (UCT 2012a: 27)

The diversity and scale of this funding allows the university to support substantial levels of research activity.

Human capital

UCT employs about 5,000 staff members, of which there are "897 permanent instruction/research or academic staff" and an unlisted number of other non-permanent (contract, part-time, visiting) staff, which total close to 1,300, making up an academic staff complement of about 2,200. "The proportion of full-time academic staff qualified at the doctoral level in 2011 was 67%. A further 27% of all academic staff held masters level qualifications" (UCT 2012c: 62).

---

[43] UCT Facts & Figures (2013), available at: www.uct.ac.za/downloads/uct.ac.za/about/aboutuct_2012-13.pdf
[44] Ibid.

The university has a student-to-academic staff ratio of approximately 12:1. In contrast to many other universities in the region, UCT has a very strong postgraduate sector. Nearly one third of the student enrolment at UCT is in postgraduate degrees. This has important consequences for UCT's research output – with such a high proportion of its student body involved in research, UCT has a strong endogenous research base. This is further supported by UCT's Emerging Researcher Programme[45] which supports young scholars in developing their research competency. UCT is also heavily involved in hosting international students, who make up nearly 20% of the student body, with several semester-study courses with universities in the USA.[46]

Infrastructure

UCT possesses significant research infrastructure such as facilities, laboratories, libraries, computers, internet platforms[47] and equipment that allow research to proceed. For instance, "the Chancellor Oppenheimer Library and nine branch libraries house collections made up of over 1.2 million print volumes, including 16,700 print journal titles, and offer access to 72,000 e-journals and 190 electronic research databases."[48] Moreover, in addition to all of the research that takes place personally and in various departmental settings, the institution is home to 71 research groupings, discipline-specific and transdisciplinary research groups "which incorporate members and students from across departments and faculties" (UCT 2012a: 44). One of the exemplary instances of this strong and diverse research environment is the Southern African Labour and Development Research Unit (SALDRU), our pilot site in the School of Economics (located within our broader research site, the Faculty of Commerce), which has been producing evidence-based, policy-relevant research on a variety of socio-economic, labour and development issues. We will discuss SALDRU's work throughout this report.

Research

UCT scholars are actively engaged in research, in terms of conducting it, getting money and contracts to do it and in producing outputs as a result of it, as its numbers show (UCT 2012a: 13):

- 1,218 research contracts
- ZAR682 million value of research contracts
- 415 NRF-rated researchers
- 33 SARChI research chairs
- 1,314.40 units publication count
- 2,500 journals, books and proceedings

According to the administration, this research activity is raising the research profile of the university internationally: "Contributing to our performance in the ranking systems

[45] UCT ERP overview, available at: www.researchoffice.uct.ac.za/research_development/erp/overview/
[46] UCT International Study, available at: www.uct.ac.za/about/iapo/intstud/
[47] This includes the UCT OpenContent directory, "the web portal for accessing open teaching and learning content from UCT … The directory aims to showcase the teaching efforts of UCT academics and encourage the publication of open resources", available at: http://opencontent.uct.ac.za/node/71
[48] UCT Facts & Figures (2013), available at: www.uct.ac.za/downloads/uct.ac.za/about/aboutuct_2012-13.pdf

is our high number of publications in international journals (close to 90% of our journal production), which influences our international visibility and impact. These figures also feed into the national publication count system, as recognised by the Department of Higher Education and Training" (UCT 2012a: 17). Tables 3.3 and 3.4 show the numbers of research "units" (outputs that UCT scholars can claim in whole or in part) for the past number of years.

Table 3.3 Units of accredited journal articles per faculty[49]

Faculty	2007	2008	2009	2010	2011
Centre for Higher Education Development	10.70	19.19	21.50	19.7	14
Commerce	50.36	49.64	49.47	59.04	56.56
Engineering and the Built Environment	72.66	102.88	90.45	94.70	94.67
Health Sciences	290.96	348.89	370.94	378.07	452
Humanities	136.47	115.20	130.96	157.67	130.02
Law	30.25	36.33	52.67	61.18	49.58
Science	321.46	285.65	322.06	301.34	327.20
Miscellaneous	1.84	0.80	---	---	---
Total units	**914.7**	**958.6**	**1038.06**	**1071.7**	**1124.03**

Table 3.4 UCT accredited research output in terms of journal articles, books and conference proceedings[50]

Output type	2007	2008	2009	2010	2011
Accredited journals	914.7	958.6	1038.06	1071.7	1124.03
Peer-reviewed published conference proceedings	49.36	74.5	93.53	116.3	128.91
Books and chapters in books	53.14	53.1	56.63	65.0	61.45
Total units	**1017.2**	**1086.2**	**1188.22**	**1253.03**	**1314.39**

Management

UCT's institutional culture is best described as "collegial", in that much of the operational power of the university exists at the faculty level. It is also characterised by high levels of personal autonomy for scholars, who are able to have a say in how the university works. This has allowed the upper echelons of the university to focus on high-level strategy rather than everyday bureaucratic maintenance (as is often the case elsewhere).

University scholars enjoy the support of a broad variety of entities within the institution to help them be more productive in terms of research and dissemination. These include the Research Office,[51] the Research Contracts and Intellectual Property Services Office,[52] the Office for Industry Liaison and the Intellectual Property group.[53] These entities

[49] UCT publications statistics, available at: www.researchoffice.uct.ac.za/publication_count/stats/
[50] Ibid.
[51] Research Office, available at: www.researchoffice.uct.ac.za
[52] RCIPS, available at: www.rcips.uct.ac.za/contracts/overview/
[53] IP Group, available at: www.rcips.uct.ac.za/ip/overview/

leverage the skills of scholars to obtain more research funding and opportunities, or they leverage the value of their research results so that they can have the broadest impact.

Assisting them at the institutional level is the Integrated Research Management Application (IRMA), a web-based information management system, for collecting data for the Annual Research Report and Publication Count processes.[54] The level of detail concerning research activity shows the type of capacity available for self-assessment at UCT, one of the key elements setting it apart from many other universities in the region.

[54] IRMA, available at: www.researchoffice.uct.ac.za/publication_count/irma/

Chapter 4. Scholarly communication policy landscape at UCT

In this chapter, we provide a snapshot of the policy landscape shaping University of Cape Town (UCT) research and communication activities. We do so by viewing this landscape from three different vantage points: the international context, the national context and the institutional context. Through this nested approach, we will get a clearer idea of how the university's scholarly communication activities respond to their surrounding policy environment. Through a thick description of this landscape, we will be able to offer some light analysis concerning institutional scholarly communication, though this chapter mainly serves to set the stage for a more comprehensive analysis of the relationship between scholarly communication practices and the policy environment in later chapters.

The international context

The scholarly communication policy environment in Southern Africa remains highly influenced by academic norms established in the global North. This is not only due to the historical foundations of the universities themselves – derived from British models in the cases we studied – but the nearly hegemonic position that European and North American universities enjoy in setting global academic standards. This helps to explain why, even though Northern and Southern universities are often animated by different values and missions, their scholarly communication methods are largely the same, even if those divergent missions might be better served by different communication strategies.

The scholarly communication norm up until recently has been characterised by three prevailing features. In this "traditional" model, scholarly communication is:

- Disseminated primarily through journal articles, books and book chapters, thus equating to scholar-to-scholar communication
- Published by third-party commercial publishers that charge subscription fees (for institutions) or purchase costs (for individuals) to access their publications
- Often assessed according to a work's Impact Factor, the metric purporting to

measure a work's prestige and "importance" based on the average citation rate the publishing journal's articles collectively achieved during a two-year period

However, these normative standards are in a massive state of flux as the open access (OA) and alternative metrics movements

challenge the utility of the traditional scholarly communication model and the arithmetic sensibility of the Impact Factor. These challenges emanate largely from within the institutions of the global North, but they also shape Southern scholarly communication opportunities, offering new possibilities for greater visibility and social "impact".

Open access goes mainstream

Over the last five years, global scholarly communication discourse has changed dramatically, moving from a discretionary consideration in academic research activity to an integral component of that process. In many ways, this is due to the achievements of the open access movement, which gained the scholarly, institutional and governmental support necessary to move from the activist fringe to the mainstream. This transition was signalled by the raft of policies adopted by major research-funding bodies, which required that all research funded by them was made open access, such as:

- European Commission[55]
- European Organisation for Nuclear Research (CERN)[56]
- European Research Council (ERC)[57]
- Max Planck Society[58]
- Research Council UK (RCUK)[59]
- UK government[60]
- UK Department of Health (NHS/NIHR)[61]
- UNESCO[62]
- US government agencies[63]
- US National Institutes of Health (NIH)[64]
- World Bank[65]

[55] European Commission MEMO/12/565 (17/07/2012) Open access to scientific data – Communication and Recommendation – background, available at: http://europa.eu/rapid/press-release_MEMO-12-565_en.htm?locale=en
[56] CERN Scientific Information Service, Supporting Open Access Publishing, available at: https://oldlibrary.web.cern.ch/oldlibrary/OpenAccess/PublicationPolicy.html
[57] Open Access Guidelines for researchers funded by the ERC, available at: http://erc.europa.eu/sites/default/files/document/file/open_access_policy_researchers_funded_ERC.pdf
[58] Open Access and the Max Planck Society, available at: http://edoc.mpg.de/doc/help/mpg_oa.epl
[59] RCUK Policy on Open Access, available at: www.rcuk.ac.uk/research/outputs/
[60] Finch J (2012) *Accessibility, Sustainability, Excellence: How to Expand Access to Research Publications.* Report of the Working Group on Expanding Access to Published Research Findings: The Finch Group. Available at: www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf
[61] Statement on DH/NIHR-funded research and UK PubMed Central, available at: www.nihr.ac.uk/files/pdfs/OpenAccessPolicyStatement.pdf
[62] Swan A (2012) *Policy Guidelines for the Development and Promotion of Open Access*. Paris: UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002158/215863e.pdf
[63] John Holdren (22 February 2013) Memorandum for the Heads of Executive Departments and Agencies, available at: www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf
[64] NIH Public Access Policy Details: http://publicaccess.nih.gov/policy.htm

With these major funders[66] requiring that their research outputs to be made freely available to the public, scholars and universities have had to think beyond the traditional scholarly communication paradigm, a reality with which our partner universities in Southern Africa were just beginning to grapple.

Another key implication of these mandates is that while some funders such as the European Commission focus their open access requirements on traditional scholarly outputs (such as peer-reviewed journal articles), others such as the World Bank require it for all types of research outputs (including reports, working papers, policy briefs, data, etc.), thereby broadening the very notion of what constitutes scholarly communication. SCAP argued for this enlarged approach to scholarly communication throughout its engagement with Southern African universities, but it will likely only become a mainstream proposition through the continued production and dissemination of such alternative outputs by the scholarly community in response to incentives such as funder mandates and institutional reward systems.

Along with these funders, many universities have also adopted open access policies governing the dissemination of their faculty members' research outputs, including Concordia, Dartmouth, Duke, Edinburgh, ETH Zurich, Harvard, MIT, Princeton, UC Berkeley and the University College London.[67] These universities are contributing to a groundswell of institutionally based action endorsing open access principles.

While funder mandates have given a major financial and policy incentive for scholars to communicate their research openly, the growth of open dissemination platforms (such as OA journals and institutional repositories) has also made such a choice more feasible. For instance, according to Laakso and Björk (2012), between 2000 and 2011, the number of open access journals has grown significantly, as has the number of articles published in an OA fashion. In 2000, 744 open access journals published 20,700 articles. In 2011, 6,713 full open access journals published approximately 340,000 articles. Each year, the proportion of open access articles rises by about 1%, totalling approximately 17% of the 1.66 million articles listed in the Scopus journal article index in 2011. The fact that many smaller OA journals are not even featured in indexes such as Scopus or the Web of Science suggests that the proportion of OA publishing is even higher than often recognised, a fact that confirms the considerable impact that OA outlets are having on scholarly publication (Laakso *et al.* 2011).[68]

This growth has been matched by the expansion of open access IRs where universities curate, profile and disseminate their scholars' research, some of which has been formally published elsewhere. According to the Open Directory of Open Access Repositories (OpenDOAR), the number of IRs worldwide has increased from 128 in December 2005 to

---

[65] World Bank Open Access Policy for Formal Publications, available at: http://documents.worldbank.org/curated/en/2012/04/16200740/world-bank-open-access-policy-formal-publications

[66] For a more comprehensive list of funder open access mandates from BioMed Central, see: www.biomedcentral.com/funding/funderpolicies

[67] For a list of universities worldwide with open access policies from BioMed Central, see: www.biomedcentral.com/funding/institutionalpolicies

[68] For an incisive summary of Laakso and Björk's article, see Ben Mudrak (10 November 2012) New study tracks growth of open access publishing, *AJE Expert Edge*, available at: http://expertedge.journalexperts.com/2012/11/10/new-study-tracks-growth-of-open-access-publishing/

2,454 in October 2013.[69] This includes 81 repositories currently in Africa (3.3% of the global total)[70] of which 69 are located in sub-Saharan Africa (40 of these are in Southern Africa). The proliferation of repositories worldwide offers new possibilities for universities to take greater control of their scholarly communication destinies.

These two dissemination mechanisms – open access journals and open access IRs – are the subject of an intense debate concerning which platform offers the most viable, sustainable and affordable OA dissemination mechanism going forward. This debate is known as that between the "gold route" and the "green route".

According to the Joint Information Systems Committee (JISC), the *gold route* involves "publishing in a fully open access journal or website. Subjected to the same peer-review procedures as a traditional journal, the open access journal will usually be available online. Authors may need to pay for their work to be published, although this is very rare as it is often provided for by the research grant. Some institutions even pay these fees out of a central fund to account for the differences between research councils."[71]

The *green route* involves "self-archiving in a repository". While this can lead to logistical challenges (such as getting scholars to upload their own materials), "repositories offer a number of benefits. They increase the availability of some published journal works with restrictions on reprinting or text mining, and may enable work to be propagated across the internet and used for novel applications. Repositories also allow authors to keep track of who is downloading their data."[72]

While SCAP believes that there are merits to both approaches, we did not promote one over the other in our engagements with our partner universities. We were more interested in helping to establish an open access ethos where scholars, managers and librarians could identify and pursue OA strategies in line with their own interests and capacities. Because of this, during the course of our research and interactions with these universities, project participants became attuned to the ways in which international open access trends were impacting scholarly communication opportunities.

Revised approaches to assessing impact

Another key debate shaping international scholarly communication discourse and the policies that universities use to assess their own academics' research revolves around the value and utility of the Impact Factor, a common performance assessment metric. The Impact Factor is a number representing the average number of citations that a journal's

---

[69] Growth of the OpenDOAR Database – Worldwide, available at: www.opendoar.org/onechart.php?cID=&ctID=&rtID=&clID=&lID=&potID=&rSoftWareName=&search=&groupby=r.rDateAdded&orderby=&charttype=growth&width=600&height=350&caption=Growth%20of%20the%20OpenDOAR%20Database%20-%20Worldwide

[70] OpenDOAR Proportion of Repositories by Continent – Worldwide, available at: www.opendoar.org/onechart.php?cID=&ctID=&rtID=&clID=&lID=&potID=&rSoftWareName=&search=&groupby=c.cContinent&orderby=Tally%20DESC&charttype=pie&width=600&height=300&caption=Proportion%20of%20Repositories%20by%20Continent%20-%20Worldwide; see the distribution of repositories worldwide through this dynamic Google map from Repository66, available at: http://maps.repository66.org/; see also the Registry of Open Access Repositories (ROAR), available at: http://roar.eprints.org/

[71] JISC, Gold and green: The routes to open access, available at: www.jisc.ac.uk/whatwedo/topics/opentechnologies/openaccess/green-gold.aspx

[72] Ibid.

articles collectively receive during a two-year period. Thus if the Impact Factor for a journal in 2012 is 1.5, then the articles published in that journal in 2010 and 2011 collectively averaged one-and-a-half citations in 2012. The point of the Impact Factor – devised by the Institute for Scientific Information (ISI) in the 1960s and now known as the Thomson Reuters Web of Science (WoS)[73] – is to measure the "impact" of a journal within a given academic field and, by proxy, suggest an evaluation of the relative impact of the articles published within it.

For university managers, the Impact Factor offers a handy "objective" means for estimating the quality and "impact" of a scholar's publication. For instance, during a scholarly assessment exercise (such as for promotion), managers can utilise the Impact Factor to help them gauge the level of contribution that a scholar is making to his or her field. Because there are tens of thousands of journals published globally, and because it is difficult for managers otherwise to evaluate the quality of a scholar's output, the Impact Factor provides a seductive shorthand for helping with that process.

However, in the digital age, where individual articles, chapters and books (or any digital scholarly object) can be tracked and measured through internet technologies, the traditional Impact Factor seems to obscure as much as it reveals. As a tool from the print era, it remains wedded to an outmoded citation-averaging technique (at the journal rather than the article level); it narrowly defines impact as citation rather than use (meaning that it privileges an insular form of scholarly impact rather than a broader notion including social, developmental or industrial impact)[74] and it renders countless research outputs invisible because it excludes thousands of journals (many from the global South) from being considered for an Impact Factor score.[75]

Because of these problems, the Impact Factor has been heavily criticised by scholars (Clobridge 2012; COAR 2012; Ernst 2010; Lawrence 2008; Lehmann, Lautrup & Jackson 2003; Patterson 2009; Rossner, Van Epps & Hill 2007; Seglen 1997; Vanclay 2012), leading many of them to express their collective dissatisfaction by writing and signing the San Francisco Declaration on Research Assessment (DORA) in 2012. The primary recommendation it makes is: "Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions."[76]

---

[73] Thomson Reuters Web of Science (WoS), available at: http://thomsonreuters.com/web-of-science/

[74] The ISI/WoS rankings are often taken as a proxy for development impact. For example, in an important report into the research effectiveness of African universities, the three output indicators used were graduation rates, production of PhDs and publication of journal articles in ISI journals. The latter metric was justified as follows: "ISI-referenced publications represent a narrow notion of research output, but it is what makes it a flagship university and its academics part of the global knowledge community" (Cloete, Bailey & Maassen 2011: xx). A useful critique of this reasoning can be found in this reflective piece: Sam Wineburg (26 August 2013) Choosing real-world impact over Impact Factor, *The Chronicle of Higher Education*, available at: http://chronicle.com/blogs/conversation/2013/08/26/choosing-real-world-impact-over-impact-factor/?cid=cr&utm_source=cr&utm_medium=en

[75] Thomson Reuters WoS does not monitor all journals published worldwide, but just a selected list of 12,000 journals which it considers "top tier international and regional journals in every area of the natural sciences, social sciences, and arts and humanities." This list excludes thousands of journals from the developing world. For more information on "The Thomson Reuters Journal Selection Process", see: http://wokinfo.com/essays/journal-selection-process/

[76] San Francisco Declaration on Research Assessment (DORA), available at: http://am.ascb.org/dora/

Furthermore, the UK's Research Excellence Framework (REF) – the influential research assessment exercise of British HEIs – has dropped Impact Factors from its evaluation process: "No sub-panel will make any use of journal impact factors, rankings, lists or the perceived standing of publishers in assessing the quality of research outputs. An underpinning principle of the REF is that all types of research and all forms of research outputs across all disciplines shall be assessed on a fair and equal basis."[77]

Meanwhile, as scholars and managers start to move away from the Impact Factor, new opportunities are emerging to assess an output's "impact" in a more precise and comprehensive manner. The most important of these is the alternative metrics (or Altmetrics) movement,[78] which promotes the use of data-harvesting technologies that allow computer programmes to track digital scholarly objects as they are cited, downloaded, viewed, liked, tweeted, bookmarked and shared.[79] This permits scholars and managers to get a far clearer understanding of an output's impact and use than the blunt journal-level Impact Factor citation metric. Altmetrics allows for the evaluation of any type of digital scholarly object (journal article, conference paper, policy brief, ebook, etc.) while the Impact Factor is confined to formal journal articles. Moreover, alternative metrics allow scholars to gain a far deeper insight into how their outputs are being used and shared, leading to them being able to tell "impact stories"[80] that detail the real-world effects of their research (which has become a growing component of academic performance assessments).

While the alternative metrics movement is not yet as mainstream as the open access movement, it is creating new options for the many who seek to do away with or replace the Impact Factor. However, in the Southern African context in which we conducted our research, we found that these discussions were not as robust as they were in the global North. The Impact Factor remained a powerful assessment tool for scholars and managers. But through our advocacy work, we were able to raise an awareness of these competing scholarly measurement paradigms, an awareness that will likely grow as article- (or object-) level metrics become more common worldwide.

The national context

In emerging economies, such as those in Southern Africa, governments expect their universities to play a key role in national development through the production and dissemination of knowledge. This desire is revealed in policy statements by government ministers, in university mission statements and in the social discourse concerning the role of universities in emerging economies. While this is true in South Africa as well, the burden upon universities to direct their research efforts towards development-related

[77] Research Excellence Framework 2014 – Frequently Asked Questions, available at: www.ref.ac.uk/faq/all/
[78] The global Altmetrics movement was largely born out of the Public Library of Science's (PLOS) work in pioneering article-level metrics in 2006. This shift to a different locus of measurement opened the doors to wide-scale interrogation of previous metrics and exploration of new tools and methodologies which became mainstream in 2011/2012. For more on the ethics and rationale behind the movement, see "Altmetrics: A manifesto", available at: http://altmetrics.org/manifesto/
[79] The most popular services for this are provided by Altmetric, available at: www.altmetric.com/
[80] ImpactStory, one of the services that emerged from the Altmetrics movement, provides scholars with a variety of usage statistics that allows them to construct a narrative interpretation of their work's impact, available at: http://impactstory.org/

outcomes is not as heavy as it is in other African countries where there is often a small higher education sector responsible for the nation's research output. In South Africa, universities form just one part of a diverse research infrastructure, which includes public and private research bodies, soft-funded NGOs and profit-sustained industrial corporations. The country's 23 public universities play an important role in this multi-faceted research context, but they enjoy relative autonomy, engaging in research activities of their own choosing. Yet despite this plethora of independent research effort – or rather because of it – South Africa ends up enjoying a solid level of research production that has developmental applicability.

South Africa's belief in the power of research to positively impact education, politics, commerce and society is well stated in the National Plan on Higher Education (GRSA 2001: 61), which states:

> *Research ... is perhaps the most powerful vehicle that we have to deepen our democracy. Research engenders the values of inquiry, critical thinking, creativity and open-mindedness, which are fundamental to building a strong, democratic ethos in society. It creates communities of scholars, who build collegiality and networks across geographic and disciplinary boundaries. It makes possible the growth of an innovation culture in which new ideas, approaches and applications increase the adaptive and responsive capacity of our society, thereby enhancing both our industrial competitiveness and our ability to solve our most pressing social challenges. It contributes to the global accumulation of knowledge and places our nation amongst those nations, who have active programmes of knowledge generation.*

This commitment to research – and the scholarly communication strategies to disseminate it – are exemplified in the following national plans, strategies and policies:

- National Development Plan 2030
- National Research Foundation (NRF) Act
- NRF Vision 2015
- Department of Science and Technology Ten-Year Innovation Plan
- National Plan on Higher Education
- Higher Education Act's Policy and Procedures for Measurement of Research Output of Public Higher Education Institutions

This selection of national research policies (which is not an exhaustive list, but the most important for our purposes) assume that research can lead to economic growth which can, in turn, lead to social development. The policies are not prescriptive to the various research bodies, but seek to establish a framework that would optimise their research production and dissemination, and thereby contribute their intellectual heft to the government's development mission.

National Development Plan 2030

The National Planning Commission (NPC) – an advisory body located in the Presidency – produced the National Development Plan 2030, which the ANC-led government has adopted as its broad development strategy for the country. As a plan, its proposals are not binding, but it provides an important reference for government ministries as they produce their own strategies and policies. It provides the broadest set of statements regarding national development and how research forms part of a much bigger social, economic and political effort. Though most of the plan's education section discusses institutional access and research production issues – not scholarly communication per se – it does includes a number of proposals that have important ramifications for dissemination activity at the university level.

First, the plan explicitly calls for the continued support of research-intensive universities by seeking to "strengthen universities that have an embedded culture of research and development. They should be assisted to access private sector research grants (third stream funding) in addition to state subsidies and student fees, attract researchers, form partnerships with industry and be equipped with the latest technologies" (NPC 2012: 319). This means that universities such as UCT should continue to enjoy state support, even in the realm of collaboration and dissemination through technology.

Second, it urges all state-funded research bodies (including UCT) to be mindful of national development priorities in their research, calling for the creation of "a common overarching framework to address pressing challenges in the national system of innovation, involving the higher and further education system, state-owned enterprises and private industries. The system needs to function in a coherent and coordinated manner with broad common objectives aligned to national priorities" (NPC 2012: 326–327). This does not prescribe that all research activity be subsumed under a state-sanctioned developmental umbrella, but just that relevant research activity should be identifiable and connected with other efforts in a way that is visible to the state.

Third, in keeping with the country's "differentiated" approach to higher education, the plan wants to "develop a few world-class centres and programmes within both the national system of innovation and the higher education sector over the next 18 years …. These should be in South Africa's areas of comparative and competitive advantage, including indigenous knowledge systems" (NPC 2012: 327). UCT certainly has designs to be a "world class" university and believes that it represents a key "competitive advantage" in the South African research sector.

The plan also expresses a desire for more partnerships between academia, parastatals, industry and research councils. However, it does not prescribe the commercialisation of research, but leaves the question of innovation and dissemination strategies open so that the stakeholders can identify which approaches – open or closed – work best for them.

National Research Foundation Act and NRF Vision 2015

One of the key pieces of legislation defining South Africa's research infrastructure is the NRF Act which was written "to provide for the promotion of research, both basic and applied, and the extension and transfer of knowledge in the various fields of science and

technology and indigenous technology; and … to provide for the establishment of a National Research Foundation" (GRSA 1998).

The foundation has since been established with the objective of coordinating and funding research projects (especially in science and technology), but its functions also include activity related to scholarly communication, such as to (GRSA 1998):

- Facilitate liaisons with national and international researchers and institutions
- Make available scientific knowledge or technology through any medium
- Promote the provision of an information infrastructure linking research institutions to facilitate cooperation and sharing of research information and knowledge
- Compile and maintain a national registry of research funded by the foundation

Through activities like these, the NRF has become a major part of South Africa's research infrastructure. Currently, its activities are guided by the five principles of NRF Vision 2015, which are to have (NRF 2008: 19):

1. Internationally competitive science, technology and innovation system
2. Representative research and technical workforce in South Africa
3. World-class science benchmarking and grant systems
4. Leading edge research, technology and innovation platforms
5. Vibrant national science system

Within Vision 2015, the NRF asserts certain desires to raise the visibility and dissemination effectiveness of South African research outputs. First, it wants to raise the proportion of South Africa's contribution to global research output (which currently stands around 0.65%)[81] to 1%. Second, it wants to raise the proportion of South Africa's citation intensity to 0.1%.[82] Third, it wants to have 2,500 rated researchers recognised in the country (now numbering at 2,471)[83]. Fourth, it wants to increase the national patents per capita rate. And fifth, it wants to internationalise research performance assessment (NRF 2008: 16).

This vision seeks to make South Africa a truly global player in the field of research, internationally recognised and respected. It largely takes for granted the appropriateness of "international" (i.e. Northern) research assessment norms – which may or may not be appropriate for a developing country in Africa – as well as the value of the conventional scholarly communication model (in which a large proportion of outputs remain unavailable to the public), but it creates a sense of dynamism, capacity and competition in South Africa's research space that most scholars find beneficial.

[81] According to Pouris (2012), South Africa's share of "world's publications" reached "a peak during 1987 (0.65%) and then a decline, which appears to have reached its lowest point in 2003 (0.47%). Since then, the share increased gradually to 0.65% in 2010 and reached the 1987 peak."
[82] According to King (2004), citation intensity refers to the ratio of citations to a nation's scientific papers to its national GDP. When he conducted his comparative study of nations, South Africa's citation intensity was well below 0.05% while Greece was at 0.1% and other nations (such as Singapore, Finland, the UK and USA) were well above that.
[83] For more information on the current state of NRF rated researchers, see NRF (2012).

DST Ten-Year Innovation Plan (2008–2018)

The Department of Science and Technology's (DST) current ten-year plan aims to provide a roadmap for transforming South Africa into a "knowledge-based economy, in which the production and dissemination of knowledge leads to economic benefits and enriches all fields of human endeavour" (DST 2008: vii). It seeks to "produce a generally innovation-literate society and workforce, thus contributing greatly to the strengthening of South Africa's competitiveness in the knowledge era and arena" (DST 2008: v).

The government believes that its "broad developmental mandate can ultimately be achieved only if South Africa takes further steps on the road to becoming a knowledge-based economy" (DST 2008: vii). But up to now, the country has failed to sufficiently "commercialise the results of scientific research" and produce "(in both a qualitative and quantitative sense) knowledge workers capable of building a globally competitive economy" (DST 2008: vii). This is making it more difficult to "close the gap" with the knowledge-based economies of the developed world.

Thus this ten-year plan is premised on "the need to accelerate and sustain economic growth" (DST 2008: vii) with the proposed strategy that "the government should invest in areas of the highest socio-economic return" (DST 2008: 5) while increasing spending on research and development to 1% of GDP and strengthening its international research collaborations (DST 2008: 30).

While this plan does not prescribe how scholarly communication should take place, it suggests that formal peer-reviewed journal articles are the most valuable vehicles for disseminating research results. As the plan states, "the principal qualitative measure of knowledge production is the output of original articles published in scientific journals. From 1990 to 2004, South Africa's output averaged about 7,000 articles a year, despite indications of increased funding" (DST 2008: 26). This sentiment is corroborated not only in other government research policies, but in university dissemination strategies as well. Only those outputs produced in publications listed by the Web of Science or vetted by the DHET count as "knowledge".

National Plan on Higher Education (2001)

While the NPC, NRF and DST plans speak to research in a broad overarching sense nationally, the education sector has also developed plans for how it hopes to involve public university academics in that larger mission. The primary document establishing this is the National Plan on Higher Education, which comprises five key objectives, one of which is to sustain and promote research. While the other goals focus on issues of social and economic development, equity, diversity and institutional restructuring, the research objective seeks to "sustain current research strengths and to promote the kinds of research and other knowledge outputs required to meet national development needs, and which will enable the country to become competitive in a new global context" (GRSA 2001: 60).

When the plan was written in 2001, part of the impetus for this focus came from an anxiety about the drop in South Africa's proportion of ISI-rated research outputs in the mid-1990s, a "worrying" outcome that the plan's writers suggested was due to scholars' shift away from basic research to more applied research.

> *It is estimated that our share of world output has declined from approximately 0.7% in 1994 to approximately 0.51% in 1998 (as measured by the Institute for Scientific Information). The reasons for the decline in research outputs are not clear and require investigation. However, one likely explanation is the shift in research focus towards strategic and applied research, with the emphasis on socio-economic and industry-related issues, and a concomitant decline in basic research. This is confirmed by data from the South African Knowledgebase, which indicate a shift over the past ten years towards more health and applied natural science research and a shift from general humanities research to more applied social science research.* (GRSA 2001: 61)

What is significant about this assessment is that it makes explicit links between research performance according to ISI percentages with actual research productivity and quality (a link that is taken for granted by many South African policymakers and academics today). The citation-based ISI ranking system is accepted as if it were the ultimate arbiter of value for research outputs.

However, this notion may not be warranted in a developing world context. For instance, the passage above suggests that South Africa's decline in the ISI's relative proportion of global output amounts to an absolute "decline in research output", even though it then states that this "decline" is likely due to a change in focus from basic to applied research. Thus, this change in the ISI percentages may not reveal an actual decline in research, but simply a shift in research focus (which might not earn the same level of visibility on the ISI's index).

In the post-apartheid context, however, it could be argued that it was strategically valuable to shift attention from basic to applied research so that the country's intellectual power could have a greater practical impact on the nation's poor. Certainly during apartheid, a lot of the country's top minds were unable to make as positive a contribution to the nation through their research due to the government's restrictive laws. But this is not the sentiment expressed in the passage. Rather, the plan complains that "this [applied] research is often not published in accredited journals or in other formally recognised output measures. Whatever the reason, it is clear that the decline in research outputs calls into question the ability of the higher education system to meet the research and development agenda of the country. The decline in traditional or basic research, including research in the humanities, is worrying" (GRSA 2001: 61).

However, such a conclusion is not clear at all, especially since it assumes the ISI ranking system measures actual research productivity, which it does not. It only gleans a portion of all research output. (Moreover, any "decline" in South Africa's percentage of global ISI output may just as well be due to increases elsewhere – such as in China – as it is to any apparent slowdown in South Africa).

Later, the plan acknowledges this point as well as the fact that many materials (especially those aimed at non-academic audiences which have developmental applicability) are not measured by the ISI in the first place:

> *The Ministry [of Education] is mindful of the concerns raised by higher education institutions and researchers about the weaknesses and limitations of the current policies and procedures to measure research outputs. These include: the lack of recognition given to certain types of publication outputs such as technical reports and policy reports; insufficient acknowledgement of the distinctive character of research at technikons; bias against certain disciplines in the arts and the humanities in that the system does not recognise all forms of creative output, such as music, drama etc.; an outdated list of accredited journals; and lack of response to the development of new knowledge systems and new modes of knowledge production.*
> (GRSA 2001: 62)

However, this acknowledgement did not lead the Ministry of Education to rethink its understanding of the South African research picture. Rather, it simply noted these concerns while maintaining its belief in the accuracy and credibility of the ISI indexing mechanism.

In many ways, this commitment by the ministry to assess the country's research productivity according to the most prestigious "international" indexing system makes sense, especially in the immediate post-apartheid era. Considering how isolated from the international community South Africa had been during apartheid, education stakeholders would have felt compelled to adopt the international norms and standards that signalled their intention to participate in a global community of scholars. Even if some of those "international" standards were really just "Northern" ones, and even if they did not quite suit the needs of a developing nation (as the quote above recognises), it would have been difficult for the ministry to insist on an alternative research measurement structure while it was trying to reconnect with an international academic ecosystem that largely took the ISI research performance measurement system for granted.

This ambivalence remains prevalent in South Africa today. While many educationalists continue to acknowledge the limitations of the ISI/WoS ranking system in the Southern context, the country's policymakers, funding agencies, universities and scholars still rely to a high degree on the WoS index to assess their research performance.

Higher Education Act research output subsidy

The Higher Education Act's Policy and Procedures for Measurement of Research Output of Public Higher Education Institutions (GRSA 2003) incentivises the production of scholarly research outputs through a unique subsidy system that creates a "virtuous funding cycle" in which the production of research at a university leads to it obtaining money from the government to fund yet further research projects. As Mouton (2010: 23) explains, "South African universities are directly rewarded for the number of publications in accredited journals that their staff produces. This system was established in 1985 by the then National Department of Education as a way of incentivising South African science amidst its growing international (including scientific) isolation."

This subsidy systems sets South Africa apart from its regional neighbours, allowing it to create the financial capacity for scholars to produce solid levels of research outputs in a sustainable fashion. The funds that these outputs generate are significant for universities (and sometimes scholars personally). "As of 2005, an amount of approximately USD180 million was available (on a competitive basis) for rewarding research output – now also including research master's and doctoral graduates. The monetary awards for publication units [ie. a single WoS-rated journal article] increased significantly from approximately USD9,000 in 2005 to nearly USD12,000 in 2009" (Mouton 2010: 25). According to a UCT manager, the rate in 2013 was ZAR118,000 (roughly USDS12,000) per unit. For universities and scholars, this system has a powerful effect on structuring scholarly communication incentives, strategies and output decisions.

Each university handles the distribution of these subsidies differently, with some paying a portion of it into individual scholars' research accounts while others pay a portion into the relevant faculty's research fund. Other portions may be used by the central administration for other purposes. (At UCT, individual scholars do not receive any of the subsidy directly, but enjoy the expanded pool of financial resources that the faculty and university obtain as a result.)

Thus, every year South African universities compile and submit a publication count to the DHET, which then allocates subsidies based on how many and which types of recognised outputs were produced. However, while the purpose of the policy is "to encourage research productivity by rewarding quality research outputs" at public HEIs, it "is not intended to measure all outputs", only "the major types": articles in DHET-accredited journals, peer-reviewed books/chapters in books and peer-reviewed published conference proceedings (GRSA 2003: 4). The list of accredited publications eligible for the subsidy is known as the SAPSE (South African Post Secondary Education) list.

Articles in DHET-accredited journals

According to the policy, articles published in journals that are listed in the following indexes are eligible for the DHET subsidy:

- Institute of Scientific Information (ISI). There are three sub-indices of the ISI listings which are accredited: Arts and Humanities Citation Index, Science Citation Index Expanded and Social Sciences Citation Index.
- List of approved South African journals.[84]
- International Bibliography of the Social Sciences (IBSS).[85]

However, this does not include "Correspondence to editors, Abstracts or extended abstracts, Obituaries, Book reviews, News articles, Advertorials, and editorials" appearing in those journals.[86]

[84] DHET approved list of SA journals, available at: www.researchoffice.uct.ac.za/usr/researchoffice/publication/SA-JournalList2013.xlsx
[85] IBSS bibliography, available at: www.researchoffice.uct.ac.za/usr/researchoffice/publication/IBSS-2013-List%20of%20accredited%20journals.xlsx
[86] See: www.researchoffice.uct.ac.za/publication_count/overview/

Research articles published in an approved journal are "subsidised as a single unit [currently about ZAR118,000 per unit], if all the authors are affiliated to the claiming institution. In the case where authors are affiliated with two or more institutions, the subsidy is shared between the claiming institutions."[87]

Peer-reviewed books/chapters in books

Books that meet "specified criteria are subsidised. Examples of different types of books include monographs, chapters, and edited works." According to the policy:

> *A book may be subsidised to a maximum of five units or a portion thereof, based on the number of pages being claimed relative to the total number of pages of the book, if all the authors are affiliated to the claiming institution. A guideline of a minimum of 60 pages and maximum of 300 pages will be allocated per unit or proportions and multiples thereof, if all the authors are affiliated to the claiming institution. However, where authors are affiliated with two or more institutions, the subsidy is shared between the claiming institutions.*[88]

Peer-reviewed published conference proceedings

The DHET also recognises certain conference proceedings[89] that are "allocated a maximum of one-half of a unit (0.5) if all the authors are affiliated to the claiming institution. In the case where authors are affiliated with two or more institutions, the subsidy is shared between the claiming institutions."[90]

This subsidy system, which was developed, in part, to help the apartheid regime maintain high levels of research production while facing growing international isolation, has been highly beneficial for the democratic South African administration as well, because it has delivered on its potential of supporting solid levels of research production.[91]

The institutional context

At an institutional level, UCT's scholarly communication strategies and policies are best expressed in the UCT Mission and Values, Research Policy, Strategic Plan and Research Strategy.

---

[87] Ibid.
[88] Ibid.
[89] SAPSE-accredited conferences for 2013, available at: www.researchoffice.uct.ac.za/usr/researchoffice/publication/DHET%20List%20of%20Approved%20Conferences%202013.xlsx
[90] See: www.researchoffice.uct.ac.za/publication_count/overview/. Furthermore, while the unit subsidy rate for journal articles is clear (ZAR118,000), the rate for non-journal articles is "never disclosed to the university", according to one UCT manager, as it is simply included in the lump sum paid to the university in recognition of its outputs.
[91] The SAPSE system has its detractors, however, as can be gleaned in the following articles. See Vaughan (2008); Charlotte Mbali (25 February 2011) Published or be damned. *Mail & Guardian*, available at: http://mg.co.za/article/2011-02-25-publish-or-be-damned

UCT Mission and Values

At the heart of UCT's mission is a commitment to networking, research, social relevance, quality and diversity:

> *UCT aspires to become a premier academic meeting point between South Africa, the rest of Africa and the world. Taking advantage of expanding global networks and our distinct vantage point in Africa, we are committed, through innovative research and scholarship, to grapple with the key issues of our natural and social worlds. We aim to produce graduates whose qualifications are internationally recognised and locally applicable, underpinned by values of engaged citizenship and social justice. UCT will promote diversity and transformation within our institution and beyond, including growing the next generation of academics.*

This mission is informed by values that seek for the institution to create "an encompassing ethos which promotes" excellence, social responsiveness, transformation, human rights and communal responsibility. To achieve this, "we commit ourselves to": truth and integrity in personal and institutional relationships; compassion and concern for the needs and aspirations of others, especially the less privileged; tolerance of diversity; respect for privacy; intellectual honesty and openness to alternative ideas; high standards; and other values concerning safety and responsibility.[92]

These high-level assertions speak to the kind of environment that UCT seeks to create for its students and academics. Through its mission and values, the university hopes to create an enabling platform for people to pursue their academic desires. As we will see in later chapters, this focus on creating an empowering ethos has a number of salutary effects on research production and sustainability.

UCT Research Policy

The UCT Research Policy states "that a prime function of its work is to create information for the eventual improvement of society" and that:

> *UCT strives to maintain and strengthen all excellent research, whether its applicability is immediately obvious or not. Research at UCT includes basic, curiosity-driven, applied and contract research, as well as policy development, and artistic and creative production. It encompasses a broad spectrum of mind-stretching activity, all characterised by necessarily strenuous intellectual endeavour and the intention to influence the thinking of others through teaching, publication and dissemination of ideas, results or data. It should have an impact on students as well as on the leading thinkers*

[92] UCT Statement of Values (adopted in 2001, currently under review), available at: www.uct.ac.za/downloads/uct.ac.za/about/introducing/uctvaluestatement.doc

in the field. This applies equally well to fundamental research and to the application of ideas to societal problems and needs.[93]

These ideals, as revealed in the policy, focus on the importance of peer review in the research process (providing for the assurance and increase of quality), teaching, quality assessment, and implementation (through creating a supportive research environment, providing research funding, facilitating engagements with industry, etc.). These ideals are elaborated on and extended in the strategic plan and research strategy discussed below.

UCT Strategic Plan (2010–2014)

UCT defines itself as a "research-led" university that wants to transition to a "research-intensive" university (UCT 2012a: 14). According to its current Strategic Plan (UCT 2009: 10), to be research-led "first presupposes that the quality of the research that it does must be excellent, as measured by its impact and, secondly, it requires that research informs everything that it does, especially the other areas of its core business, namely teaching and socially responsive work." With this research-inspired vision guiding the university's path, the goals of the Strategic Plan are to (UCT 2009: 2):

- Enhance UCT's position as an *Afropolitan university* by making it an intellectual meeting point for scholars who have an interest in Africa's place in the world.
- Strengthen UCT's *international research profile* through academic exchanges and research dissemination and partnerships worldwide, especially South–South links.
- Enhance *graduate attributes* by equipping students with knowledge and understanding of and exposure to continental and international contexts.
- Internationalise the student experience, through recruiting an internationally diverse student body and *innovative curricula development* relevant to Africa and beyond.
- Ensure that *staff development* includes skills for teaching diverse student bodies, as well as significant international exposure.
- Contribute to the resolution of problems of global significance through a wide range of *socially responsive* activities, including research, teaching and policy engagement.

To achieve these goals, the university has committed to a number of strategies, including raising research visibility (through improved ICT tools), making research relevant to teaching and socially responsive work, bringing research into teaching and strengthening UCT's "role in addressing key development challenges facing our society through engaged research, policy and advocacy" (UCT 2009: 14). Thus the enhanced production and communication of research – internationally and locally, to scholars, students and communities – forms a key part of the university's current plans (Hodgkinson-Williams & Gray 2009), as is further detailed in its Research Strategy.

[93] UCT Research Office, Research Policy, available at: www.researchoffice.uct.ac.za/research_information/policies/uct_research/

UCT Research Strategy

The UCT Research Strategy follows the principles stated in its plans and policies, such as having a research-led identity shaped by a commitment to academic freedom, research informing all activities, disseminating knowledge that addresses key challenges facing society, protecting "curiosity-driven research", nurturing creativity and stimulating international research linkages.[94]

To abide by these commitments, the following imperatives are enumerated by the Strategy:

- Investment in research
- Quality (emphasising peer-evaluation in the funding, research and write-up phases)
- Transformation (through diversified funding opportunities and institutionally organised mentoring between senior and junior scholars)
- Impact (maintaining standards of research excellence and increasing focus on areas of strength, internationalisation, visibility and support)
- Engagement (making research relevant to teaching and socially responsive work, bringing research into teaching, into the community and into innovation)[95]

In sum, between UCT's various research policies, plans and strategies, there are three key points to note regarding scholarly communication. First, the university wants to produce and disseminate research that both secures greater international recognition (prestige) and contributes to dealing with local challenges (relevance). Unfortunately, due to South Africa's relative marginality in global affairs, it is difficult for UCT scholars to achieve international prestige at the same time as they promote research relevance. The two desires often diverge from each other due to the lack of interest that the "international" community has in local South African issues. This is not always the case, of course, but the more that scholars make their research relevant and useful for a particular local context, the more difficulties they often face in making it appeal to those who decide what is globally "excellent" and "important" (i.e. Northern journal editors). At the moment, while UCT has claimed a desire for both outcomes, it nonetheless prioritises international recognition over local relevance (which is often relegated to the "social responsiveness" category of performance evaluation) as is clear in the documents discussed above, and in the criteria by which it rewards and incentivises research (discussed further in Chapter 5).

Second, UCT's research policies are fully aligned with the government's various national research plans discussed previously. This is mainly because the government has sought to create an enabling research framework in which the diverse elements of the national research infrastructure can fit according to their own strengths and weaknesses. That is, the government is not highly prescriptive about the type of research than any one university should carry out, but has established a diverse set of bodies and funds to incentivise universities to contribute to that broader research mission on their own terms. In this way, UCT is able to leverage its particular capabilities to not only achieve

[94] UCT Research Strategy, available at: www.researchoffice.uct.ac.za/usr/researchoffice/info/policies/UCT_researchstrategy.doc
[95] Ibid.

its own research goals, but to allow for its scholars to contribute to the government's national research goals as well. This is a crucial point: the fact that UCT is just one part of a broad and diverse national research infrastructure allows it to retain the autonomy it desires because it shares the country's research burden with multiple other entities. This is not the case in many other African countries (including those SCAP profiled), where the national flagship university must shoulder a high proportion of the country's research requirements because it does not enjoy the support of a broad and diverse national research infrastructure. In this sense, South Africa's differentiated higher education system has allowed UCT to retain its unique status and capabilities, because it has not had to be subsumed under a more singular research mandate.

Third, UCT's research policies appear to place a great deal of trust in conventional scholarly communication mechanisms – such as commercial journal publishers who locate their outputs behind subscription paywalls – to achieve the "impact" that it desires. Along with the DHET subsidy policy, UCT appears to accept the verdict of the Thomson Reuters WoS index and its "Impact Factor" for deciding what is "excellent" scholarship internationally. The university's research policies also do not say anything (yet) about whether its scholarly outputs should be made open access or not, a silence that favours that status quo in which scholar-to-scholar outputs are more likely to be disseminated through traditional closed methods.

Conclusion

In this chapter, we have tried to provide a snapshot of the policy landscape shaping UCT research and communication activities. As we have seen, the international context is being radically reshaped by the open access movement, which has been embraced by numerous funders, institutions and scholars. It is turning conventional understanding of scholarly communication on its head. The global context is also being informed by provocative demands for a new type of scholarly metrics, one that goes beyond the traditional Impact Factor toward an alternative or complementary metrics that leverages the data-generating capacity of the internet. These alternative metrics seek to broaden the social and developmental meaning of a scholarly output's "impact".

At the national level, the government has supported the development of a diverse national research infrastructure with multiple research bodies, funds and strategies to leverage the country's intellectual capacity for development. These policies broadly seek to transition South Africa to a knowledge-based economy. But the government has also had a major impact on how university research is communicated by providing subsidies for research published in ISI-listed journals, DHET-listed publications and peer-reviewed books and conference proceedings. These subsidies reinforce a vision of research dissemination based solely on scholar-to-scholar communication, and only the most prestigious forms at that. The policies say nothing about whether such outputs should be open access or not, thereby missing an opportunity to broaden the impact of South African scholarship beyond the scholarly community that has access to it through university subscriptions.

At the institutional level, UCT's research benefits from the government's SAPSE subsidy policy, which incentivises high-prestige scholar-to-scholar communication. This also

suits UCT's desire to be a highly ranked university as those rankings are partially determined by the number of outputs a university produces in WoS-rated journals. But the university is also seeking to assure that its research is more developmentally relevant for the broader community and that it takes on more of an "Afropolitan" identity through greater linkages with other scholars on the continent. At this point, UCT has largely assumed that these goals can be met through a conventional scholarly communication model, as it has only recently started to engage with how open access dissemination strategies might benefit its goals.

Chapter 5.
Research & communication practices

SCAP's research examines the scholarly communication ecosystem at four Southern African universities in order to address the primary research question: What is the current state of scholarly communication in African universities?

To answer this question at the University of Cape Town (UCT), we focused on the scholarly communication ecosystem of the Faculty of Commerce (Comm), the SCAP research site.

From an ecosystems perspective, the faculty is a useful unit of analysis for understanding scholarly communication because it reveals the values, norms and practices specific to the relevant disciplines, while at the same time offering crucial insights into the values, norms and practices of the entire institution. A departmental focus would be too narrow (since most of its practices are structured by disciplinary norms) and an institutional focus would be too broad (since it is shaped by the multiple disciplinary norms within the faculties), but a faculty focus provides the necessary access to both micro and macro fields of operation.

The key virtue of the ecosystem approach for understanding scholarly communication is that it is based on the principle of interconnectivity (Benkler 2006; Cronin 2003; Friedlander 2008; Maron & Smith 2008). Every feature of the ecosystem is connected to every other in a web of mutual responsiveness, a fact that has crucial implications for the analysis of that system, and for any proposed intervention into it. The SCAP team was interested in both of these possibilities.

This chapter describes and analyses the UCT Comm scholarly communication ecosystem. It does so by assessing the faculty's profile, temporal obligations, values, research production and dissemination activities, rewards and incentives, and perceptions of the African context. Most of the chapter is concerned with detailing the elements of this ecosystem and how scholars act within it, providing a "thick description" of this particular environment. The rich details that we provide allow for important analytical opportunities while continuing to lay the foundations for our analyses in later chapters.

Faculty profile

UCT Comm consists of 125 permanent academics, of whom 82 are male and 43 are female (a 2:1 ratio). There are also 56 non-permanent academics (contract staff), of whom 38 are male and 18 are female (also a 2:1 ratio). While many completed their graduate studies in South Africa, a significant number did their PhDs abroad at universities in the UK, USA, Canada, France, Germany and Italy.

Age

The profile of our 28 survey respondents suggests that the faculty staff comprises a good mix of ages, with 14% under 30 years old, 21% aged 31–40, 25% aged between 41–50, 36% "senior scholars" aged 51–60 and 4% over 60. This suggests that the faculty should enjoy some demographic stability with the inclusion of "new blood" in the system, but it will have to deal with the impending retirement in the next 10–15 years of a substantial number of mature scholars.

Years of research experience

This relatively equitable distribution of ages is matched in the distribution of years of research experience. A solid 25% have more than 20yre, 11% have 15–20yre, 18% have 10–15yre, 21% have 5–10yre and 25% have 1–5yre.

Positions

As is befitting a research university, an overwhelming majority of the Comm staff (75%) are either senior lecturers or above. Only 11% are lecturers, plus a small percentage of postdocs (4%). Thus while the professor position remains a competitive apex category dispensed judiciously (14%), the majority of positions are filled by associate professors (32%) followed by senior lecturers (27%). This suggests that the university sees itself as a research, as opposed to teaching university, since so few remain in the lecturer category.

Salary scales

Comm staff receive competitive salaries which, as of 2012, were:

- Professor: ZAR771,584 (USD83,425)[96]
- Associate professor: ZAR614,221 (USD66,330)
- Senior lecturer: ZAR526,873 (USD57,000)
- Lecturer: ZAR427,311 (USD46,140)
- Assistant lecturer: ZAR384,581 (USD41,540)
- Junior research fellow: ZAR384,581 (USD41,540)

[96] These conversions were made on 15 May 2013, when the exchange rate between the South African Rand and the US Dollar was 9.25 rands per dollar.

According to the latest Association of Commonwealth Universities Academic Staff Salary Survey, South African universities offer some of the best salaries in the Commonwealth when measured according to purchasing power parity. Compared with this metric, they enjoy higher average wages than those paid in the UK, Canada, New Zealand and Malaysia. Only Australia ranks higher in the survey, by 6%. The report also states that "South Africa has the highest salary scales relative to national GDP per capita (the overall average academic salary is seven times the GDP per capita) and also saw the highest level of growth in academic salary scales since the last survey."[97] It suggests that there has been a gradual convergence of salary scales between all of the well-resourced Commonwealth countries due to international competition to attract staff. But the high average salaries in South Africa mask the great diversity of actual salaries paid, as each university operates autonomously in deciding how much to pays its staff.[98] At UCT, Comm faculty are generally pleased with their level of remuneration.

Time spent on teaching, research and administration

According to the information gleaned from our surveys, Comm scholars say that they spend a solid amount of time engaged in teaching-related activities (timetabling, prepping, lecturing, marking, advising, invigilating, etc.), as well as supervising graduate students and acting as internal and external examiners of theses. The median indicator from their survey responses is that these activities comprise 41–50% of their time.

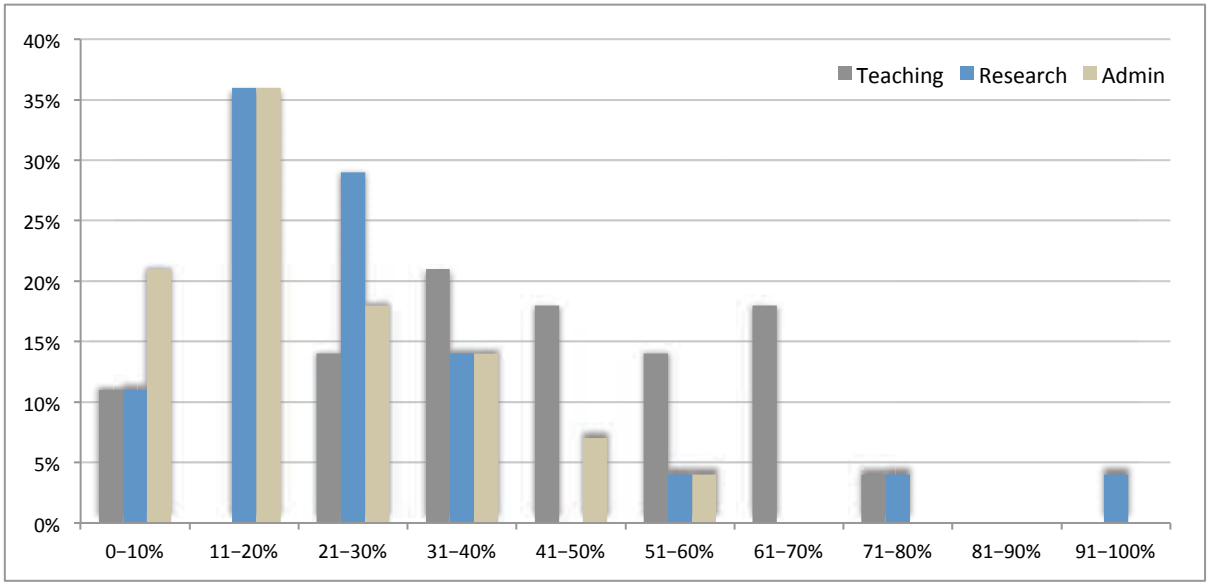
As Figure 5.1 shows, there is a great deal of diversity within the faculty as to the teaching load. For members of some departments, such as Economics, the teaching loads are mild, below 50% of their work time. But for younger scholars in other departments, such as Accounting, teaching can occupy most of their time due to large class sizes, intense marking demands and extensive student support obligations.

The median indicator for the amount of time scholars engage in research-related activities (reading secondary literature, interviewing subjects, writing articles, etc.) is 25–35%, a level that most would prefer to be greater.

A lesser amount of time is self-reported as comprising scholars' administrative tasks. The median is 15–25%. This is still more than they would hope it to be, but a good deal of it is actually done in support of their research. This marks one of the key differences between the type of administrative work done at UCT vs the other universities that we profiled. While admin work at the other universities is more about complying with the management's demands for accountability concerning student marks or expenditure allocations, a lot of UCT admin work concerns filling out research funding applications and writing feedback reports to international funding agencies. In this way, some admin work at UCT can be seen as generative in terms of research.

[97] Association of Commonwealth Universities (2011), Executive summary of the ACU Academic Staff Salary Survey (2009–10), available at: https://www.acu.ac.uk/focus-areas/staff-salary-executive-summary-2009-10
[98] Geoff Maslen (19 December 2010) Australia and South Africa pay top salaries, *University World News*, available at www.universityworldnews.com/article.php?story=20101217224942899

Figure 5.1 UCT Comm respondents' self-reported teaching, research and administrative time (%) (N=28)



As we learned through our research at the four Southern African universities, time allocation is one of the greatest factors in determining whether a university has, or can even develop, a strong research culture. At the other universities where teaching loads remain high, the new research missions struggle to gain traction in the face of persistent teaching and administrative obligations. But at UCT, where the teaching loads are comparatively lighter, a strong research culture has taken root. Though most faculty members at all the universities we profiled believe that they do not have enough time for research, UCT scholars complained the least about their teaching loads and were the most content about their time allocations. Indeed, even when they do complain, they understand that they have it easier than their colleagues elsewhere. As one manager noted, while some staff at UCT complain about their teaching loads "where there's a relatively low proportion of students to academic staff … the ratio is fairly favourable. Then you go to somewhere like UWC [the University of the Western Cape] where there are a massive number of students per staff member and they also say they don't have time."

The key difference between UCT scholars' complaints of a lack of research time and those from other Southern African universities is that UCT academics are complaining about a *relative* lack of time compared to their ambitions, while the other academics are quite often complaining about an *absolute* lack of time compared to both the management's and their own desires.

Values

To better understand scholarly communication practices at UCT, we started by trying to grasp Comm academics' motivations for conducting research and publishing their

findings. Essentially, we wanted to know what values underpinned their research and communication activities.[99]

This is a foundational question, one that is usually taken for granted in the literature on scholarly communication. Other studies, which usually focus on scholars from the global North, tend to assess academics' attitudes towards research-*related* issues such as peer review (Harley *et al.* 2007), dissemination outlets (Harley *et al.* 2010; King *et al.* 2006; RIN 2009, 2010; Rowlands & Nicholas 2005), journal quality (Regazzi & Aytac 2008), digital and Web 2.0 technologies (RIN 2010; Rowlands, Nicholas & Huntingdon 2004; Rowlands & Nicholas 2006; Schauder 1993), open access publishing (RIN 2009) and academic identity (Archer 2008).

These valuable studies shed light on scholars' attitudes toward elements of their research and communication practices, but they do not get at the more basic question of why the scholars conduct research in the first place. In Africa, where most universities have only recently incorporated a research mission into what have long been teaching-oriented institutions, the question of why scholars conduct research is a pertinent one, and the answers cannot be assumed. Moreover, the purpose of university research on the continent is shaped by more than just the desires of the scholars themselves, but by those of the national government, the institutions' managers, overseas funders, local NGOs, students and community stakeholders. All of these diverse interest groups impact how scholars view the research enterprise.

Based on numerous interviews, surveys, conversations and observations (described in Chapter 2), SCAP found that the main reasons why UCT Comm scholars conduct research are (in order of importance) to:

1. Conform to peer expectations by contributing to the research ethos at the university
2. Earn points toward promotion
3. Generate new knowledge
4. Achieve satisfaction by acting in accordance with personal desires
5. Live up to the terms of their scholarly identity
6. Enjoy contributing
7. Comply with the institution's mandate to conduct research
8. Obtain indirect financial rewards (travel and conference funds, plus block grant contribution)
9. Aid national/community development
10. Enhance their teaching
11. Observe the dictates of their job description

[99] According to Schwartz, all values are defined by the following six qualities: (1) Values are beliefs linked to emotion; (2) Values are desirable goals motivating action; (3) Values transcend specific actions or situations; (4) Values serve as standards or criteria; (5) Values are ordered by importance relative to one another; (6) The relative importance of multiple values guides action (2012: 3–4). As trans-situational abstract goals that form part of a hierarchically ordered system, values are distinguished from "concepts like norms and attitudes, which usually refer to specific actions, objects, or situations" (Schwartz 2007: 1), and need not be hierarchically ordered. Examples of such values include power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity and security (Schwartz 1994: 22). In this report, the term values will be used in a slightly more open way, beyond universal abstractions such as benevolence and security, though such deeper values will often underpin the more concrete value expressions noted here in the university context.

These motivations would be familiar to scholars at most universities, though the importance accorded to each would be influenced by the contextual factors shaping the institution, such as its history, infrastructure, wealth and mission. The significance and uniqueness of UCT Comm's research values become clear, however, when we analyse them in greater detail and compare them to the values held by scholars at other Southern African universities.

In analysing scholarly research values, it is useful to assess to what degree they are based on intrinsic or extrinsic motivations. A significant psychological literature explicates the virtue of this approach (Kreps 1997; Ryan & Deci 2000; Teo *et al.* 1999; Vallerand *et al.* 1992) and here we will use it to get a nuanced understanding of not only UCT Comm scholars' values, but also the "institutional culture" (Bergquist & Pawlak 2008) that shapes it and the "research culture" that is produced by it.

To aid our analysis, in Figure 5.2 we have plotted UCT Comm scholars' values according to their level of importance for motivating research (x-axis) and the degree to which these values arise from intrinsic or extrinsic motivations (y-axis). We have then further divided the intrinsic–extrinsic continuum into the three loci of motivation that are most relevant in the university context: the managerial (extrinsic), the collegial/social (mixed extrinsic and intrinsic) and the individual (intrinsic). This trifurcation offers a more precise delineation of scholars' motivational sources at UCT Comm.

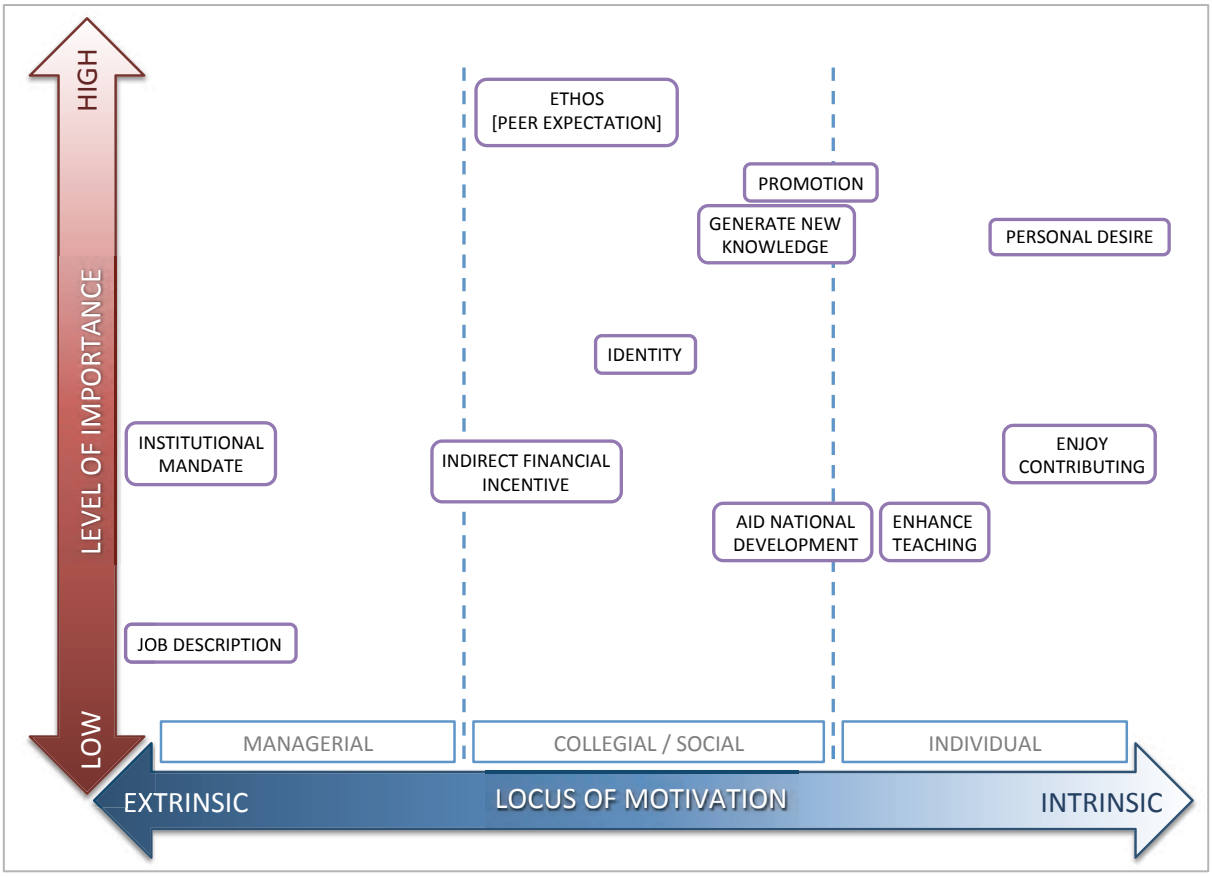
On one end of the continuum, purely extrinsic motivations emanate from the university management. These are the values of the administration that are communicated through formal mechanisms such as institutional mandates (policies) and job descriptions (contracts). When scholars respond to these managerial incentives, their responses can be described as acts of *compliance*, in that their behaviour aligns with external requirements but without any sense of personal buy-in.

On the other end of the continuum, purely intrinsic motivations emanate from within the individual. They express a scholar's idiosyncratic desires, revealed internally as feelings of joy, integrity, virtue and increase. Intrinsically motivated scholars enjoy the research process as an end in itself. When scholars respond to this interior motivation, their responses can be described as acts of *congruence*, in that their behaviour aligns with their own personally held values and desires.

In the middle of this continuum is a space where extrinsic and intrinsic motivations meet; where, in the university context, external collegial and social demands structure internal personal desires. This occurs because the individual scholar identifies with and feels a member of the collegial or social group defining the value. When scholars respond to this motivation, their responses can be described as acts of *conformity*, in that their behaviour aligns internal desires with externally structured values.

The diagram in Figure 5.2 shows that while UCT Comm scholars are motivated to conduct research by both intrinsic and extrinsic factors, the research-oriented ethos of the university has the greatest overall impact on spurring their research production.

Figure 5.2 Values motivating UCT Comm scholars to conduct research (aggregated and ranked)



This institutional ethos is constituted through everyday forms of peer expectation and evaluation between colleagues, often expressed through discursive engagements – such as casual conversation, formal recognition and critical feedback – that put subtle, persistent and yet unmistakable pressure on scholars to evaluate themselves through their research activities. As one manager put it, this is the "currency" that colleagues exchange with each other.

Most of the UCT managers we engaged, who are all accomplished research scholars themselves, recognise this powerful form of peer regulation, both the "carrot" and "stick" elements of it. It is something that the administration supports, though it does not take credit for creating it, nor of maintaining it alone. It is a social feature of the university. As one manager stated, "there's something about the ethos that people are expected to do research, which is to say that … kind of ideas of academic respectability, that one isn't a proper academic unless one is publishing …. Here it's peer driven as much as management driven."

This ethos also serves to attract other scholars who want to be in such an environment, which further reinforces this dynamic. As another manager said, "UCT has a whole long history of doing research and has a very strong research culture, so it attracts academics who are keen on research. And once you're really keen on research, you don't need an extra incentive …. It's a research intensive university and encourages people to be here who want to do research and it's got a high standard of output."

This institutional ethos exhibits features of both extrinsic and intrinsic motivation. On the one hand, it is extrinsic in that it derives from a broader collegial context that influences the individuals within it. On the other hand, because scholars identify with and claim membership in that collegial society, the values that characterise the group are also reflections of their own individual values. This ethos is shaped by a dialogical, mutually reinforcing process that helps clarify what values are important for the whole group, and concomitantly, for the individual scholar. Academics do not experience this peer pressure to do research as coming from outside alone, but from within themselves, as they have bought in completely to the collegial norm, helping maintain it themselves. They have internalised this ethic.

UCT's research-oriented ethos forms an essential part of its broader "research culture" in which every strata of the institution recognises that the university's core function is to create high-quality published research (not just employable graduates). All SCAP interviews with UCT scholars, librarians and managers revealed this shared outlook.[100]

The second most important factor for motivating research at UCT is the scholarly desire for promotion, a value that is also highly rated at other Southern African universities. On the diagram, we located promotion on the line between collegial and individual motivation because promotion not only satisfies an intrinsic desire for greater financial reward, but also elevates the prestige of the scholar in the eyes of their peers according to a status structure largely derived from collegial norms and traditions. As a motivating factor, promotion is one of the most ubiquitous, durable and reliable means for encouraging any type of behaviour, including research.

Third, a great many UCT Comm scholars want to "generate new knowledge" through their research. This ranks relatively highly here, in part because academics are expected to shape their fields through published contributions. This often requires developing new theories, analysing new resources and constructing new arguments. This desire is a relatively intrinsic motivation, but structured by scholars' fields of inquiry and the various "gaps" available to fill. Curiosity is the emotion driving the pursuit of this value.

Fourth, UCT Comm scholars are intrinsically motivated to conduct research for personal desire, because the process gives them pleasure. Many take this value for granted, assuming that this is one of the primary reasons why people join academia in the first place. As one manager said, "I think a lot of the research productivity has to do with self-motivation rather than external factors. It's not incentivised, it's not coerced, so it comes from the self." While this sentiment is less strong in professional departments such as accounting where industry practice is just as, or even more, important than academic research production, it is quite strong in traditional departments such as Economics

[100] Three UCT librarians who were interviewed independently, stated without prompting, that if they had to decide whether to keep a certain resource (journal subscription, book, etc.) or not, the determining factor would be whether it was used by an NRF A-Rated researcher, not necessarily by the undergraduate students. As one stated, "There are some resource that see very low usage. And when we see something like that, we do question: 'Well, do we still need this'? And some of the questions that come in is, 'Well, who is the person using this? Is it one A-rated scientist who's using it?' – in which case it doesn't matter how little use it gets, we need to have it, because of the benefit – 'Or is this really an undergraduate resource and their needs are being met with other resources, so we don't need it anymore?'" This prioritisation of the needs of recognised researchers (even if it amounts to only one person) trumps the needs of the non-researchers (the masses of students), at least in certain cases like these. The fact that this sentiment was expressed to us by librarians reveals the extent to which the particular logic of UCT's research culture has permeated every level of the institution.

where research production is a *sine qua non* for working in the field. This motivation is present at all of the other universities as well, though at different levels of importance.

Fifth, UCT Comm scholars want to live up to the standards that characterise their scholarly identity. This is an idealised and contested notion, but many scholars orient their actions according to the assumed terms of that identity (Archer 2008). As one scholar stated concerning his desire to conduct research, "It's part of my identity. It's part of what makes sense to me. It makes me feel that I can hold my head up in a place like this. Universities are places of research." Another manager put it even more bluntly, saying, "Well, presumably it's why one becomes an academic, isn't it." This taken-for-grantedness of the research mission forms part of the conception of scholarly identity at most research-intensive universities such as UCT, but as mentioned earlier, at other universities (such as those in Africa with a strong teaching-oriented history), it is something still to be established.

Sixth, UCT Comm scholars enjoy the simple act of making a contribution, especially in their field. They like the idea that their work will have value and utility for others. As one manager relayed, some scholars conduct research "because they think it's useful. I wouldn't say this is the main driver, but useful research is something that motivates people. And I think it comes to what you were saying about more applied things, that actually make a difference."

Seventh, many scholars seek indirect financial incentives through research, usually in the form of conference and travel funds. It offers them an opportunity to disseminate their work prior to publication, get feedback from their peers and travel abroad. As one academic said, "the main way we get feedback in this profession is through conferences and we meet potential referees or they give you hints … that this paper is good for that journal and so on. So the conference travel grants are extremely helpful."

But just as significantly, they also enjoy the esteem that goes with bringing in further research funding through their publications through South Africa's unique block grant funding system. With each publication in a journal on the SAPSE list,[101] a scholar attracts a certain amount of governmental money to their institutions (Mouton 2010). This both rewards them (indirectly) for their work and opens up new opportunities for further research by others in the faculty. When UCT's Annual Research Report is circulated, scholars can see which colleagues have been productive in terms of publication (which earns them prestige) and they can appreciate whose research activities have brought in funding for the broader faculty (which earns them the esteem of their colleagues who can benefit from this contribution as well).

Eighth, though this isn't a particularly strong motivator, some scholars feel driven to comply with the institution's mandate to conduct research. As an extrinsic incentive, it strikes many as unnecessary, but for those in departments such as Accounting that have traditionally been oriented towards training students rather than producing research papers, this institutional mandate provides a degree of pressure to do it as well. However,

[101] DHET approved list (SAPSE list) of SA journals for 2013, available at: www.researchoffice.uct.ac.za/usr/researchoffice/publication/SA-JournalList2013.xlsx

none grate at the requirement. As one scholar noted, "UCT wants a paper a year and if you give UCT a paper a year, they get off your back."

Ninth, some scholars would like their research to "aid national development" in some fashion, though it is not the overwhelming purpose of their activity (Mouton 2010: 30). In any case, many feel that they are already contributing to national development by teaching students at the university. One scholar offered that "many researchers have as an additional motivation that their research is, or at least is intended to be, relevant to issues relating to development, poverty and equality, national growth and so on." Though scholars at the other Southern African universities SCAP studied expressed a greater interest in having their research contribute to national development than UCT Comm scholars, it is not clear whether this leads to research outputs that are actually more useful for development purposes.

Tenth, and relatively unimportant in the hierarchy of values, some scholars are motivated to conduct research so as to enhance their teaching. Though most acknowledge that research is beneficial for teaching, it ranks far lower as a motivator than it does at the other universities we studied which still have a heavy teaching focus. We located this value on the line between social and individual motivation because most of the desire to "enhance" this aspect of their work derives from themselves as individuals, and to a certain extent from their students. Since the administration evaluates teaching performance more according to quantity (hours) rather than quality, scholars' desire to improve their teaching emanates largely from themselves, with feedback from their students helping to structure their efforts.

Lastly, UCT Comm scholars are motivated by their job descriptions, another extrinsic motivation similar to the institutional mandate. Both require scholars to conduct research, but the job description is the product of an individual contract with the university while the mandate is a collective dictate applying to the entire academic staff.

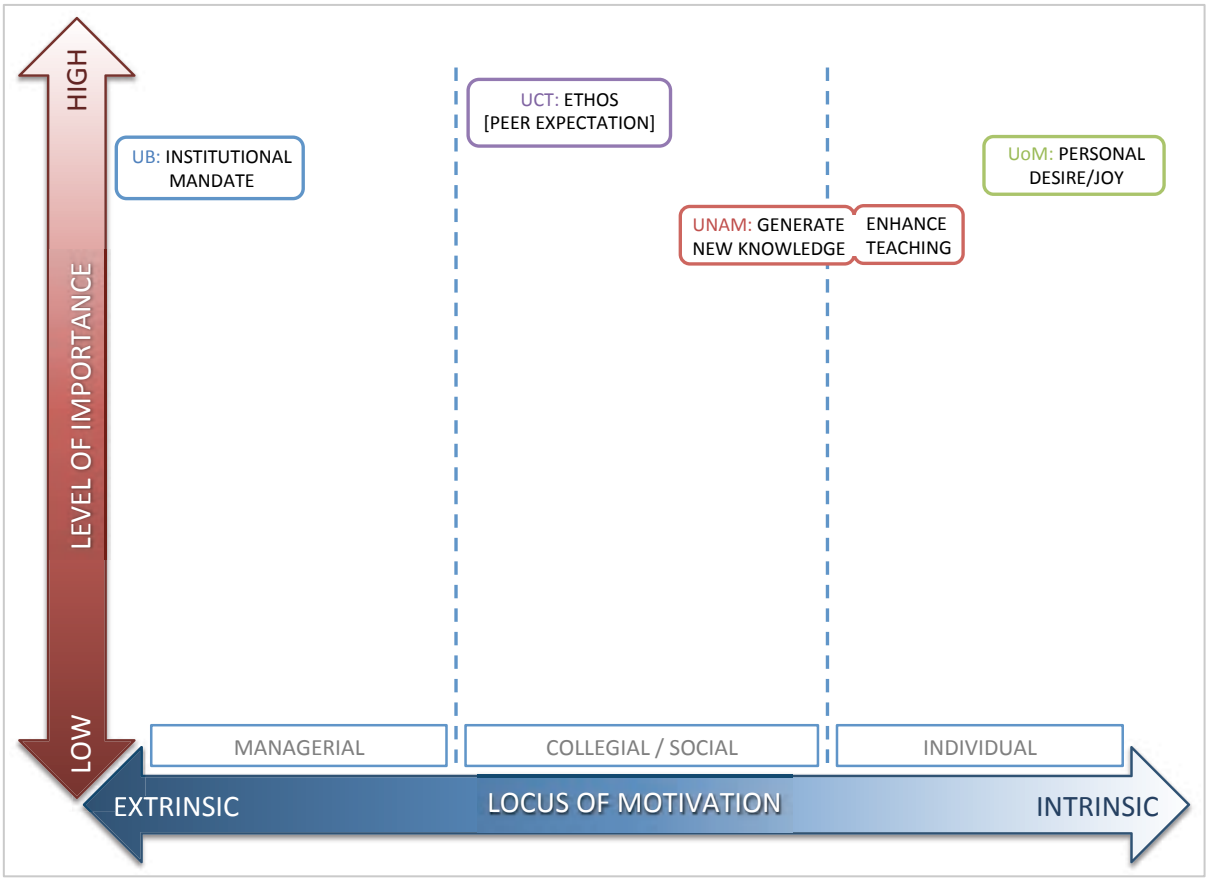
It is also worth mentioning that some scholars are motivated by the potential for mobility that research publication offers them. Though this was not mentioned enough in our research to make it onto the general list of values, it would certainly matter for some. As one manager said, research output gives scholars

> *the feeling of mobility. That it's a competitive world, if you're not publishing, you're probably often as good as your last publication or book. And you want to feel like you've got opportunities, that you're not locked in, closed down … that you're losing edge. And I think a lot of people at UCT are like that. UCT is part of a huge global system and people do get job offers and they want to be competitive. And they want to say, "Well, if I've got a chance of going to Cornell or Stanford or London, Cambridge, Oxford, then I'm going to have the CV that allows me to do that."*

If we compare UCT Comm's research values profile to those of other Southern African universities, it becomes clear how unique it is. Figure 5.3 shows the top motivating factors for research at UCT, UB, UNAM and UoM. At UCT, peer expectation predominates, as the production of research is seen as part of the social ethos. It is a mixed, but extrinsically leaning, collegial value. At the UB Faculty of Humanities (FoH),

the institutional mandate is the primary research motivator. It is a highly extrinsic managerial value. At the UNAM Faculty of Humanities and Social Sciences (FHSS), the desire to generate new knowledge and enhance teaching are the two key principles driving research in the still-largely teaching-focused university. It is an intrinsically leaning social and individual value. And at the UoM Faculty of Science (FoS), personal desire drives research production. It is a highly intrinsic, individual value.

Figure 5.3 The main values motivating research at UB FoH, UCT Comm, UNAM FHSS and UoM FoS



This comparison shows that, even though these university faculties share a number of similarities in terms of geography, history and mission, their differences are sufficient to create significant diversity in how their scholars respond to the research endeavour.

Open access

As part of our values research, we also tried to gauge Comm academics' feelings about open access principles, thus we asked them to indicate their level of agreement with the statement "African scholarship should be freely available on the web." Of the responses given, 21% agreed strongly, 46% agreed, 18% disagreed, and 14% said they were not sure. While these numbers suggest some support for OA in the faculty, they reveal a more cautious attitude compared to other universities in the region. For instance, a majority (69%) of UNAM FHSS scholars agreed "strongly" with the OA statement, while only 4% disagreed with it. Our survey found a similar enthusiasm gap between UCT and UoM.

Those endorsing OA at UCT Comm said they did so for a variety of reasons, but primarily because it overcomes social exclusion, lowers barriers to knowledge, increases visibility of research on the continent, enhances collaboration and is a condition for progress. Those who were more ambivalent about OA noted that there were some circumstances in which publishing restrictions were legitimate (especially if certain commercial considerations are involved) and warned that scholars who make their research publicly available should not be surprised when their work is plagiarised.[102]

But a significant percentage of UCT Comm respondents were outright against OA, stating that it represents a threat to the integrity of research because of increased spam, piracy, plagiarism and theft of intellectual property. It also poses an unquantifiable risk to journals' stability and financial health, and requires a large investment in time for scholars. Indeed, compared to the other Southern African university faculties SCAP researched, UCT Comm was the only one where respondents were more likely to state that they disagreed or were unsure about OA than they were to strongly agree with it.

The UB FoH was the only other faculty we researched where scholars had some hesitancy towards OA, largely due its negative association with the managerially driven IR. But at UCT Comm, the expression that best captures scholars' thoughts on scholarly communication is "if it isn't broken, why fix it?" Many academics in UCT Comm, of which 40% are over the age of 50, have built careers and reputations based on the traditional means of scholarly communication. They have published in subscription-based journals for many years, contributing to their field in a way that has made sense to them. They understand and believe in the virtues of the traditional model of scholarly communication, and are wary of any new model that might diminish those virtues, especially quality and prestige. Younger scholars often have the same perspective, handed down to them from mentors who have advised them against straying from tried and trusted means of dissemination.

This is an important insight, as it reveals that open access is not a politically neutral dissemination model, nor can it automatically be assumed to be beneficial for all scholars. While it certainly benefits end-users who can download a far greater number of materials for free, it may in fact threaten the power and prestige of scholars who have made their names in the closed system. With open access, they have to learn a whole new way of thinking about how they communicate their research and they must accept that their work will not only be available to their limited number of journal-subscribing colleagues, but may be consumed by the general public as well. That changes the potential reception of their work, as both scholars and the public contribute to an understanding of its value. Open access also allows for more web-savvy scholars to overcome the limits of the traditional peer-regulated closed model by catering directly to the general public, generating interest in their work based on values held outside of the academy. That is, OA opens up collegial power relations in unpredictable ways, which may not reinforce the position of those who have thrived under the closed system.

[102] One academic shared how OA publications can be plagiarised: "I once went to a conference where one of the presenters was using my slides (from a previous meeting!). The same happened with an exam paper I was asked to moderate. To the question: 'Is it up to standard?", I replied, 'Yes, I wrote it myself some years ago!'"

Open access is also not a "free" dissemination mechanism, as UCT Comm scholars are learning to their chagrin. Though they've always intuitively known this to be the case, with each negotiation with a publisher over an article processing charge (APC), they remember how much easier it was under the old closed system when they didn't have to pay anything personally to have an article published. As one scholar shared:

> *I applied for a fee waiver from an open access journal with about a EUR1,200 fee because I'm from a South African university. But I found out that UCT doesn't qualify for any fee waivers because of the income status of the country, so I abandoned the attempt to publish in that journal. It was my first choice of journal. At that stage I had no idea if there was anyone I could talk to at UCT about that. I had a vague understanding that UCT gets money from the government if there's an international journal article published, but I just thought it would be less hassle if I publish in a different journal.*

Thus UCT Comm scholars' feelings about OA are mediated by numerous factors, including political, practical and economic considerations. The moral element of the OA ethic is but one of many in scholars' understanding of it.[103]

Research and dissemination cycle

Having established the faculty's demographics and motivations for conducting research, we can now explore their research production and dissemination practices. To help us understand these, we consulted a number of other scholarly communication models (Björk 2007; Garvey & Griffith 1972; Houghton *et al.* 2009; Hurd 2000; Sondergaard, Andersen & Hjorland 2003; UNISIST 1971), many of which had been theorised prior to the revolution in online digital communication, the mainstreaming of open access ethics and the proliferation of Web 2.0 technologies. But because global scholarly communication norms have been evolving so rapidly over the last few years, we decided to use Czerniewicz's (2013) research and communication cycle model because it incorporated an understanding of these important developments.

Czerniewicz (2013) compares the "traditional" (closed, scholar-to-scholar) research cycle to the digitally mediated, open access model that is shaping the current global scholarly communication landscape. Both are based around the same four core elements – conceptualisation, data collection and analysis, articulation of findings, and translation and engagement – and both include similar types of intellectual inputs (literature reviews, conceptual frameworks, etc.) and research outputs (books, journal articles, etc.). But the key difference is that, in the new model, scholars are able to communicate elements of their research during every step of the research cycle through various digital platforms, from the conception phase onwards. They no longer have to wait until every facet of the project has been completed before they start sharing their thoughts, processes and findings through various online mechanisms (blog posts, tweets, comments, etc.).

[103] Part of the moral commitment to openness is recognised by the university which signed the Cape Town Open Education Declaration which commits it "to accelerating efforts to promote open resources, technology and teaching practices in education." See UCT OpenContent, available at: http://opencontent.uct.ac.za/node/71

Figure 5.4 Traditional research and communication cycle (Czerniewicz 2013 – CC-BY-SA)

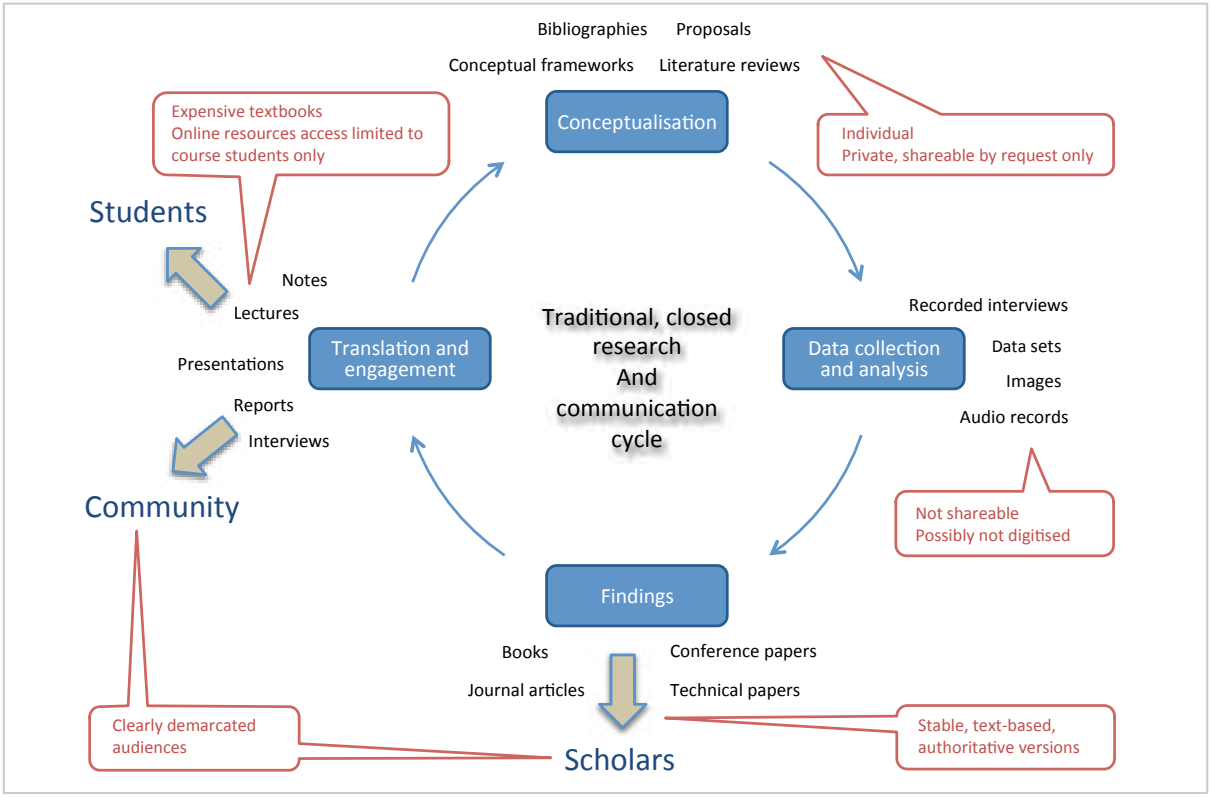
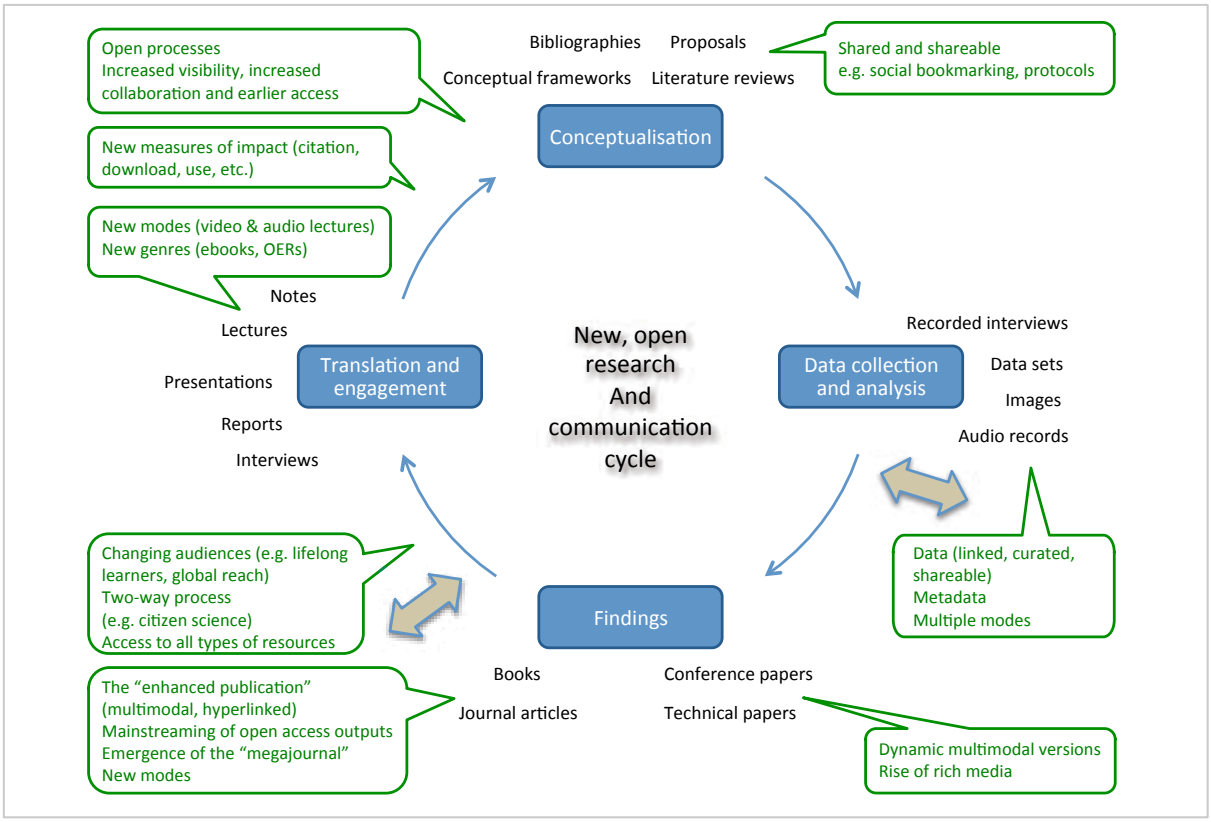


Figure 5.5 New research and communication cycle (Czerniewicz 2013 – CC-BY-SA)



The key virtue of the Czerniewicz model is that it views scholarly research as occurring along a cyclical, rather than a linear, path, as so much of scholarly work involves retracing one's own steps through prior research data. Scholars revisit their materials and spin off new outputs, travelling around the research and dissemination cycle multiple times before moving to new projects and cycles. It also has the virtue of presenting contemporary dissemination activity as "radiant", pushing scholarly objects outward towards multiple audiences (scholars, students, industry, civil society) at each point along the cycle. This updated understanding of the research and dissemination cycle allows us to assess UCT Comm activities from a unique vantage point.

Conceptualisation

During the first step of the research and communication cycle, scholars conceptualise the issue that they will explore through their proposed research. This process entails not only serious intellectual work (thinking through the various aspects of a potential research project and imagining possible processes, problems and outcomes) but also important planning work (ensuring the plan is feasible and worthwhile from a theoretical, practical and financial point of view).

As part of the intellectual process, this involves engaging with the relevant secondary literature to establish whether a new project would have analytical value and make a contribution to the field. Such engagement not only ensures that one's research does not duplicate previous research, but it is generative of new ideas in itself, usually offering new dimensions to a research concept.

As part of the planning process, this not only involves determining where the research should take place (lab, in the field, etc.) and who should be invited to collaborate in the process, but it also involves determining how much funding is required to conduct it and which funders should be engaged to obtain such funding (if necessary).

For the purposes of this discussion, we will focus less on the creative processes that UCT Comm scholars engage in during their conceptualisation activities and focus rather on the practical elements of their research and communication practices. These relate to scholars' use of print and electronic materials, their online search behaviour and their utilisation of various funding opportunities.

Print and electronic materials usage

As part of our focus on the research production and dissemination cycle, we explored academics' access to print and digital materials and their online search behaviour.

With educational and research materials disseminated in both print and digital formats, UCT Comm scholars continue to rely on both. When asked to rate the importance of certain print materials to their research, they rated international journals (54%) and local/national articles (39%) as the "most important", though many also rated them as "somewhat important". This was followed by international books, local/national books, conference papers, working papers and grey literature.

However, faculty members were more likely to access digital resources for their research now that so much of it is available for download online. While all of the categories of

resources get some mild "often" and "sometimes" numbers, the two that really matter are international journals (92% "often") and local journals (71%). These are higher numbers than the other universities we surveyed, especially in terms of local journals, of which South Africa has in abundance compared to elsewhere on the continent.

This bias toward international resources of all types is probably best explained by two reasons: one, the amount of internationally produced scholarship available is enormous compared to the smaller amount of nationally produced scholarship available from South Africa; two, many scholars (and even the university administration) consider "international" opinion and publications as more prestigious than local, national ones.[104] Thus scholars not only seek to publish in such international publications, but to get a substantial amount of their knowledge from them.

Most Comm academics also said that there were very low barriers to accessing the materials they needed from the well-provisioned UCT library. However, many also used the international connections they also had to get access to work that was not available through UCT or not yet in the public domain. One scholar said that if he was struggling to get the latest published work, he was usually able to find a working paper on the same topic. Another shared a more ambiguous appraisal of UCT's level of access: "Through my links with Yale, if I can't find it here, I'll find it there. Actually, I always go through Yale first and then through UCT. So I really have no idea whether UCT has the resources I need. I'm not sure if my log-in there will continue but my co-author has access to both Yale and Harvard."

However, while this situation pertains to the procurement of secondary literature (journals, books, etc.), it is often different regarding locally derived primary data. For instance, SALDRU members often develop projects that draw on a number of well-established longitudinal panel surveys, which the unit either coordinates or participates in coordinating. Two prominent examples include the National Income Dynamics Study (NIDS)[105] and the Cape Area Panel Survey (CAPS).[106] Access to such data sets has a powerful impact on shaping the type of research questions that the unit seeks to answer.

---

[104] For instance, the NRF reserves its highest accolade, the A rating, for researchers who are "recognised by their peers as leading international scholars." See: www.nrf.ac.za/files/file/NRF%20Ratings_2013/Rating%20categories_approved%20EEC%2013%20February%202013.pdf

[105] NIDS is a project of the Presidency and is a nationally representative panel survey that is implemented every two years, starting in 2008. It is overseen by a steering committee made up of key government officials and independent experts. Michigan University also runs a similar panel survey so there was a close link between SALDRU and Michigan about the way in which the work would be organised. SALDRU tenders for the work and subcontracts the fieldwork. Waves are undertaken every two years and the data is downloaded in real time. It is then checked for quality, cleaned, made into publication format and taken to public release every two years. SALDRU also trains on this survey, including UCT academics and students (where the training involves learning to use the statistical software Stata), as well as members of other universities and groups involved with research.

[106] CAPS was started in 2002 and conducted in waves since then, either by SALDRU or by the Centre for Social Science Research (CSSR) at UCT and run in conjunction with Michigan University. Funded by the US National Institutes for Health and the Mellon Foundation amongst others, its focus is the lives of youths and young adults in metropolitan Cape Town and it covers a wide range of outcomes, including schooling, employment, health, family formation and intergenerational support systems.

Search behaviour

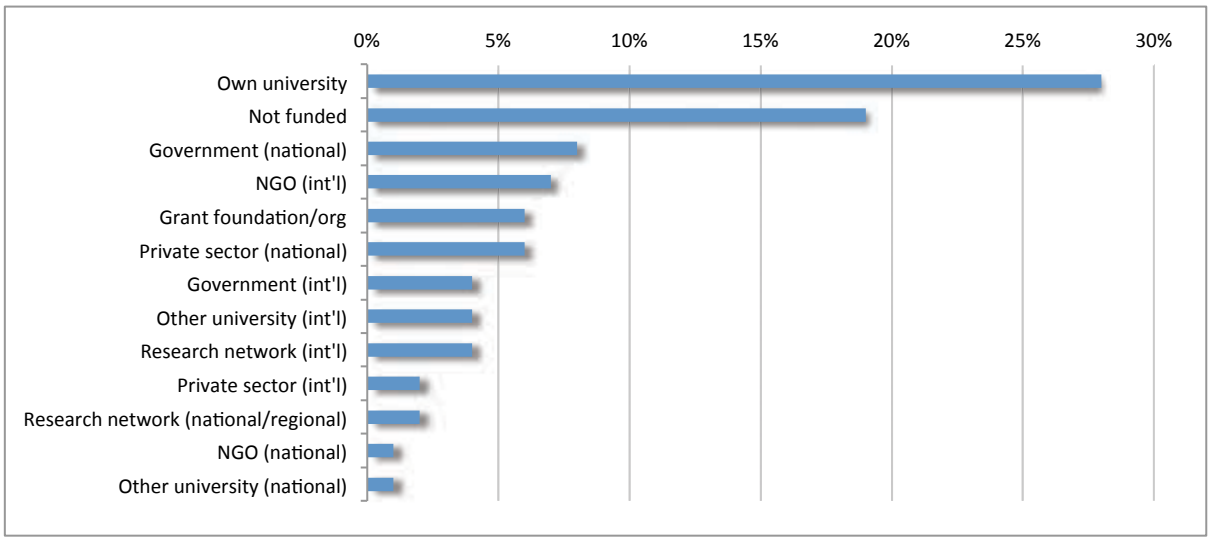
When searching for materials online, UCT Comm academics say that they use Google Scholar the most (72% "often"), followed closely by academic databases (71%). This pattern is reversed at the other Southern African universities SCAP engaged, where there was a clear preference for the databases over Google Scholar. This is probably because the other universities have highly limited journal subscriptions, thus it is less worth their time to look through Google Scholar where so many of the results will be unavailable to download, so they stick with their databases where they are assured of being able to download the material. At UCT, however, which says that it has access to 72,000 e-journals, the promiscuous nature of Google Scholar searches are likely to provide a more robust list of download possibilities and the scholars will be able to download them.[107]

Funding sources

During the conceptualisation phase, most UCT Comm scholars must consider seeking funding for their new projects. Whether they obtain it, and from whom, has a significant impact on how they end up conceiving of their research, how they conduct it and how they disseminate their findings.

According to our survey respondents, the majority (55%) of UCT Comm scholars' research is either funded by their university (28%), unfunded (19%) or funded by the South African government (8%) (Figure 5.6). The rest is typically financed through NGOs, grant foundations and the private sector, with smaller numbers funded from elsewhere.

Figure 5.6 Sources of funding for UCT Comm respondents' research projects over the past two years



[107] According to a UCT fact sheet, the university's "nine branch libraries house collections made up of over 1.2 million print volumes, including 16,700 print journal titles, and offer access to 72,000 e-journals and 190 electronic research databases." See: www.uct.ac.za/downloads/uct.ac.za/about/aboutuct_2012-13.pdf

Similar to the other universities where scholars have to look beyond their own universities for research funding support, UCT Comm scholars also source a good deal of support from external bodies, suggesting that they enjoy the prestige and networks necessary for broad research opportunities.

One of the ways in which they do this is by acting as the "African" partner in a larger, Northern-funded project that requires input from a number of global research collaborators who can provide and analyse local data for it. Due to UCT's good reputation abroad, its scholars are highly sought after for precisely these types of collaborations.

Another way Comm scholars get further research funding is through consultancy work. According to one manager, "people have to be very creative in sourcing funding for their research and really, the only way to get big ticket, expensive research done is to find ways of combining contract work with research." Unlike in other parts of Africa, where consultancy work is often taken up by scholars to bolster their low incomes, UCT scholars are typically more interested in the research options they provide. They also avoid many of the pitfalls of "consultancy culture" (Mamdani 2011a; Mkandawire 2011) by negotiating upfront with the funders to be able to use aspects of the research for their own academic publications. As a manager explained:

> *So a government or a corporation wants some research data or data analysis done and you negotiate at the start of the contract that some parts of the analysis will be proprietary to the client and there will be some other aspect of the research or some other kind of data you'll have access to or some other sidecar analysis you'll do that you can publish in journals and students can use in theses.*

This shows that UCT scholars are relatively strategic in their dealings with the government and industry, finding ways to deliver a personal and public benefit from otherwise proprietary research engagements.[108] It also highlights the agency that scholars and universities have vis-à-vis funders regarding copyright restrictions. Scholars who see their work as contributing to a deliberate career path will be more forceful in asserting their rights over certain research materials than those who simply view themselves as "scholars for hire".

Data collection and analysis

The second phase of the research and communication cycle entails data collection and analysis. It also opens up opportunities for sharing preliminary findings and data publicly, prior to formal publication. For Comm scholars, this usually involves surveys, interviews and various other types of data analysis. It would also entail some level of

[108] While this is typically the case, some of the younger scholars gravitate to consultancy work for its financial implications, but they feel ambivalent about it. As one said: "I don't want to do consulting work but financially I feel I have to. It provides a buffer to an income. But you have to be very discerning. A lot of it you can't publish and then some of it you need to develop post the work phase to get it to publication quality and then it's not clear that it's worth it. My other projects tend to be of a higher quality so you get them into a higher ranking journal. It may be that there are different inputs into them or that simply there are proper research questions. Those who commission consultants are often confused about what they want, so it's often messy."

engagement with tools and technologies that help process that data into results that can be analysed.

For the purposes of this discussion, we will focus less on the actual research processes that UCT Comm scholars engage in during their data collection activities and focus rather on the tools and technologies that mediate them. Within our ecosystem framework, tools form a crucial node in the Comm scholars' research and communication activity system. It is also the element in this phase that determines the level of research in which UCT scholars can engage. We will also discuss whether Comm scholars utilise this time to share research information prior to publication or whether they prefer to withhold such knowledge until after it has been formally vetted.

Tools and technologies

UCT is well provisioned in terms of mechanical technology, but this has not always been geared towards scholarly communication. For instance, UCT does not yet have a fully functional institutional repository (IR), one of the key mechanisms that other Southern African universities have employed to curate and profile their scholars' research, with the aim of raising their visibility. This is due, in part, to the fact that UCT scholars are already relatively visible through their publications in high-prestige journals, to which they have left the task of curating and profiling their work. Though this means that their work is dispersed across a range of commercial journal sites, UCT scholars and librarians have been slow to move to the IR concept, though a handful of departments, faculties and units have done so on a smaller scale. Indeed, SCAP's implementation initiative (discussed in the next chapter) revolved around improving an already existing unit-level repository that was not performing optimally. Recently, however, UCT's management has started looking into the prospects of investing in an IR as well.

Within SALDRU, our pilot site, members rely on tools and technologies for storing, processing and analysing survey data, some of which they do with Data First, a research unit at UCT "engaged in promoting the long-term preservation and reuse of data from African socio-economic surveys."[109] The stock of data consists of 22 different surveys (involving 1.2 million observations to date), which are publicly accessible on the internet. One Comm academic noted that the work he had done for DataFirst was "infrastructural work, and then it's like a public good, once it's there anyone can work on it …. If it comes off we will be the only facility like this in a developing country that I know of. They have them in the UK, USA and Canada."

Though most UCT academics have accommodated themselves to the particular opportunities and constraints that their tools and technologies offer in terms of scholarly communication, it is this node in the activity system that is often seen as the most appropriate point of intervention, if only because it is easier to insert a mechanical technology into a situation than revise its rules, shift its norms, reassess its aims or change its division of labour. Thus this facet of the activity system cannot be taken for granted.

[109] DataFirst, available at: www.datafirst.uc.ac.za/home/

Circulation prior to publication

A majority (75%) of UCT Comm respondents say that they sometimes or often circulate their drafts, pre-prints, working papers, or datasets prior to publication, primarily with team members on the same collaborative research projects. They also, with less frequency, share pre-publications with their colleagues at the university, with their students through teaching and with a wider academic network. Far fewer circulate these materials to the general public or the government (50% "never").

While sharing with team members would likely aid in the progress of the particular research project and thus fulfil an instrumental function, the relatively high levels of circulation with colleagues and students prior to publication suggests both a desire to get critical feedback from peers (usually in a seminar environment) and a desire to share the insights gained from the research process with future researchers. In both cases, scholars enjoy the benefit of explaining their ideas to an intellectually engaged audience that can provide useful comments and reactions.

But similar to the other faculties SCAP researched, UCT Comm staff members say that they do not go out of their way to share non-formally published research with the public or the government. This could be because they prefer that only their formally published research reaches these audiences, or that these audiences are not targets of their dissemination plans. From our conversations with them, it appears to be a combination of the two. First, there is no formal incentive for sharing such non-published research with these audiences, and second, scholars tend to trust that if their work is useful in social or governmental settings, it will be recognised and taken up by these audiences at some point during the long scholarly communication feedback loop.

However, SALDRU's own communication practices have the capacity to shorten the long feedback loop. The unit has a well-established seminar programme that often leads to working papers which are published on the SALDRU website. Most academics see the seminars and working papers as an important way of getting their work out in a shorter time frame than traditional journal articles. At the same time, they use the opportunity to gain feedback and then rework the paper into a journal submission for a high impact factor journal.

One scholar indicated that he would publish almost all of his work through the SALDRU working paper series before his papers were published in national or international journals.

> *The academic process with journals is shockingly bad, sometimes you don't hear for a whole year. Having the working paper out enables people to begin the citation process and sort of trademarks your intellectual property on that particular issue at that point in time. So that when you do submit, that period that elapsed between review and communication with the author, at least there's something that will anchor the fact that you've done this work.*

Articulation of findings

The third phase of the research and communication cycle entails scholars' presentation of findings to other scholars. For UCT Comm academics, this usually involves the writing and publication of peer-reviewed journal articles, book chapters, conference papers and reports. It is the time when scholars share their research findings with their peers through formal communication mechanisms. For many scholars – and university reward and incentive structures – it marks the imagined culmination of the scholarly research and dissemination process because academics are assessed by colleagues and managers (for promotion) according to the quantity and quality of these outputs.

For the purposes of this discussion, we will focus less on the constitution of those findings or the various "impacts" that they may have had on their respective fields and focus rather on the output types that they produce, their online dissemination activities and the composition of their research and dissemination networks. These form crucial elements in the third phase of the cycle.

Output types

Of the 158 outputs that our UCT Comm survey respondents reported producing over the previous two years, 77 were sole-authored and 81 were co-authored collaborative pieces (basically a 1:1 ratio). This is very different from the high sole-authored proportions from UB's FoH (4:1) and UNAM's FHSS (3:1), and the high co-authored bias from UoM's FoS (1:4). This suggests that the Comm faculty doesn't exhibit a strong disciplinary profile (as the three other faculties show), but in fact straddles or incorporates multiple disciplinary norms. We will elaborate on this below.

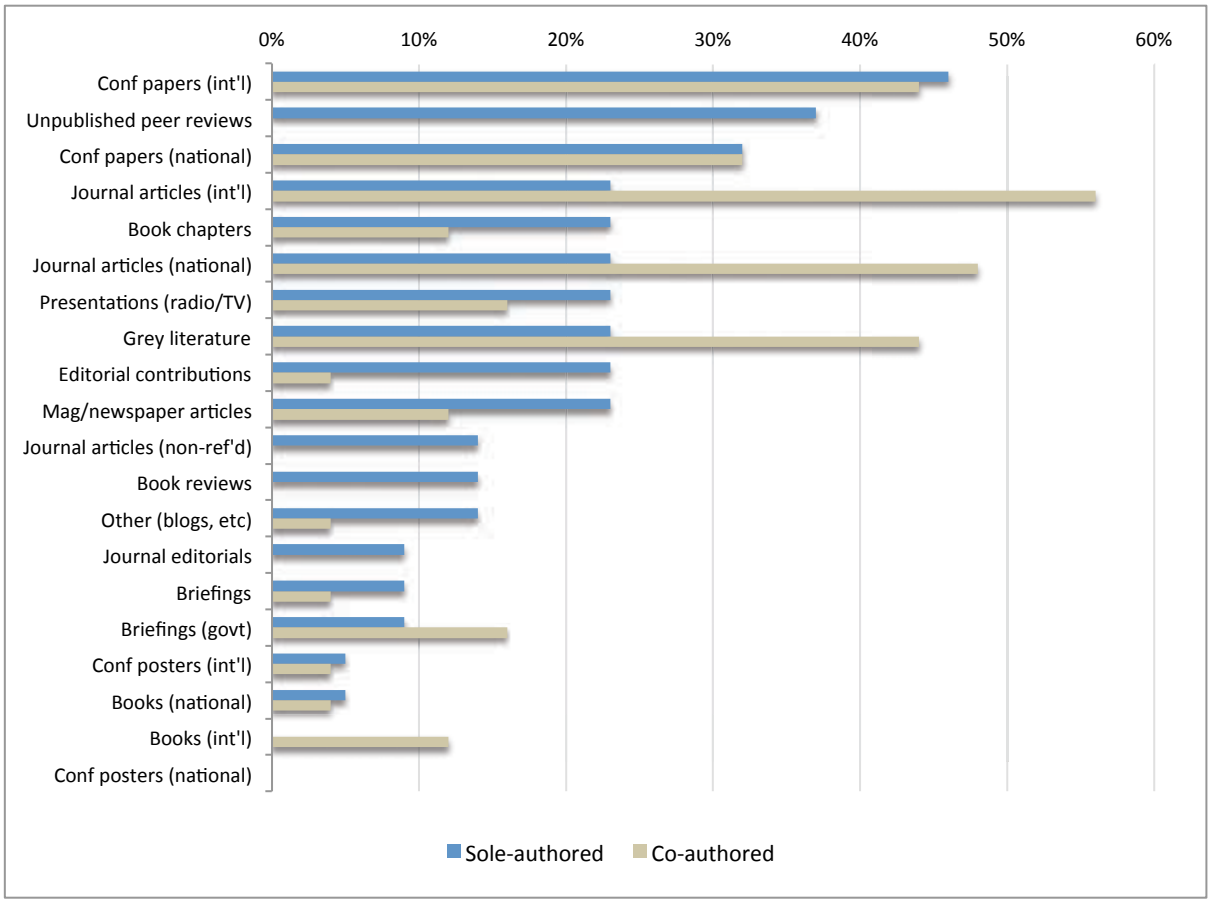
For sole-authored outputs, the highest proportion of scholars worked on international conference papers (46%), followed by unpublished peer reviews (37%), national conference papers (32%), and then seven categories of output at 23% each: book chapters, grey literature, international journal articles, national journal articles, magazine/newspaper articles, radio/TV presentations and contributions as editorial members (Figure 5.7). This suggests that scholars are involved in many different elements of production and dissemination; especially noteworthy is their contribution to journal editing duties and translating their work for popular audiences. This hints at a certain confidence on their behalf, acting as peer reviewers and as popular purveyors of expert opinion.

For co-authored outputs, the majority of respondents produced international journal articles (56%), followed by national journal articles (48%), international conference papers (44%), grey literature (44%) and national conference papers (32%). This confirms the words of a manager who stated that "the faculty publishes four or five books a year, but articles are the overwhelming focus, in journals."

This suggests that UCT Comm academics have certain publishing and dissemination strategies depending on whether they work on an output alone or with others. For instance, most of their service work (unpublished peer reviews and editorial efforts) and scholar-to-community outputs (magazine/newspaper articles, blog posts, etc.) are sole-authored, while much of their collaborative work leads to scholar-to-scholar outputs, such as journal articles. There is a good deal of overlap in what they produce alone and in

collaboration, but these variations suggest that collaborative work typically leads to scholar-to-scholar communications (or grey literature, if it is a consultancy report for a big funder) while solo work also includes various service and "translation" elements that are considered slightly tangential to the scholars' core research mission.

Figure 5.7 UCT Comm respondents' production of research over the past two years (percentage of outputs)



Moreover, the 1:1 ratio between sole- and co-authored outputs suggests that Comm research practices do not coincide with a traditional disciplinary boundary, but in fact comprises multiple disciplinary elements. This gives great flexibility to the scholars when considering projects. For instance, scholars in the Economics Department conduct both personal and collaborative research, depending on the project, while those in Accounting often boast deep connections to industry players who are more interested in the practical applications – or training outcomes for students – of their work than just the production of scholar-to-scholar outputs. As a faculty, Comm is defined by multiple allegiances and traditions – to teaching, research and professional development.

Younger Comm academics say that they are advised by senior scholars on how to go about producing and disseminating their research. A few stated that they were taught to submit their papers to the best journals, to "aim as high as possible." They explained that even if they weren't able to get into their first choice of journals, they might still be able to get quality comments from reviewers. They were sometimes also encouraged to submit

their articles to various working paper series in order to reach wider audiences. If they were co-authoring with someone overseas, they were also encouraged to make sure that the drafts were included in the relevant the working paper series at the foreign universities. Essentially, Comm scholars were taught how to approach their career dissemination choices strategically, primarily as to how it would benefit their careers and have their ideas noticed by fellow scholars.

Online dissemination activities

With limited time and opportunities for direct engagement with different audiences, scholars are able to get around these constraints by simply making their research available online in some fashion, allowing audiences of all types (intended and unanticipated) to access it. When asked if their research was available on the internet to the general public, 79% of UCT Comm survey respondents said "yes".

The highest percentage (39%) said "yes, a very small selection", 25% said "yes, a lot of them", 14% said "yes, some of them", and 21% said "none". These may sound like high online rates, with a clear majority responding "yes" to at least some level of online research dissemination, but it was the lowest rate amongst the four university faculties we researched.

This is likely because Comm faculty members continue to operate according to a traditional model of scholarly communication in which research production and publication are the key elements, not dissemination. Scholars have been free to leave dissemination issues to book and journal publishers, secure in the knowledge that at least their peers will have access to their outputs. Thus many of their publications have been print-only outputs, or they have been locked behind expensive subscriber paywalls (technically "online", but not available to the public in any meaningful sense). The rewards and incentive system under which they operate does not provide extra points or recognition for outputs that are available online, thus it has never been an imperative that they make them so. Moreover, the traditional communication model delivers their outputs to the audience that they are most keen to reach – their peers. UCT scholars have been quite successful at achieving their goals through this model and therefore, many have felt that it is unnecessary to try to push for open access or publicly available online dissemination when the traditional model is already doing what they want it to do.

This attitude may be changing at the institutional and faculty level, but because UCT consists of multiple campuses with a highly decentralised collegial culture (Bergquist & Pawlak 2008), that change is happening slowly. Debates about open access or digital dissemination do not sweep across the institution all at once, but move along slowly between "silos", if they move at all. At other universities where there is a more centralised institutional culture and where scholars are not so invested in the traditional scholarly communication model, the move toward free, online dissemination has been faster.

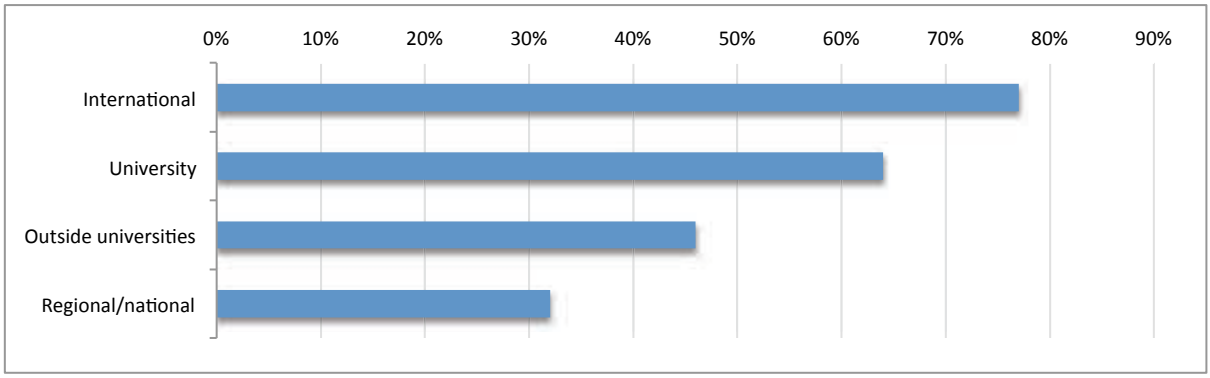
Research and dissemination networks

To the question, "Do you feel part of a broader research network or community of scholars?", 80% of UCT survey respondents say "yes" and 20% say "no". This is a greater

proportion than those who feel connected to a research network at UNAM (50%), UB (67%) and UoM (72%).

The highest proportion of those who feel a sense of broader belonging say that it is with an "international" community (77%), followed by their own university (64%), people outside universities (46%) and regional networks (32%). This shows how networked UCT scholars are internationally, due in part to where many of them come from or were trained (often abroad) and due to the high regard that they enjoy as collaborators from the African continent. They are highly sought-after colleagues for international projects, often acting as the "African experts" in multi-country or multi-continental studies.

Figure 5.8 Location of research networks for UCT Comm respondents



Indeed, many Comm scholars told us that they had spent time studying or working in the USA, in particular, and had built up and managed to maintain strong links. Explaining the complexity of such international networks, one postdoctoral researcher shared that:

> *In 2006 I got a fellowship to go to Yale for a year and the requirements were that I could research independently while I was there. My supervisor from UCT was also there at the time. I gave a lecture in her class, as well as a couple of other lectures. A link had been forged between Yale and the Centre for Social Science Research and they were embarking on a project. The supervisors wanted one student from each university to run the project. I met the Yale supervisor and her student. Then I got together with the student and we worked on a first paper for the project and that was published. After that we continued to work together. He moved from Yale to Harvard and now we actually write most of our papers together. He's had an enormous amount of exposure to different research units at different universities and he gets both collaborators and data from each of those research units.*

The fact that the majority of UCT scholars also list the university as a location of their research network shows how deep the expertise is that exists in the faculty and how rich the environment is in terms of collegial communication. As one of the few research-intensive universities in the country, scholars often take advantage of their literal

proximity to each other, involving themselves in critical communicative communities.[110] However, as one manager shared, that communication tends to happen in relatively small disciplinary structures:

> *You tend to have scholarly communication within silos, but in quite a rich way. I mean through email, through threaded discussions and the Vula website here, there are a lot of venues virtual and literal – or geographical or spatial for seminars and things to happen. This is a very communication-rich environment, but the arrows are sometimes quite unidirectional and it's difficult to change the vector.*

Lastly, while the regional identification of 32% is virtually identical with the proportions expressed at the other Southern African universities we researched, UCT Comm scholars showed the highest comparative sense of belonging to communities "outside the university" (at 46% of the 80% who said they feel a sense of broader research belonging). This is due to the high level of practical application that much of UCT Comm faculty's work has in governmental and industrial circles. Their work matters beyond the academy, thus many scholars feel a sense of the connection with these outside groups (Cooper 2009). This is not the case at the other institutions, where university linkages with the government, industry and civil society are often weaker.

Translation and engagement

The fourth and final phase of the research and communication cycle entails translation and engagement. This is the process of sharing one's research beyond the academic community – with students, policymakers, community leaders, industry personnel, etc. – in an accessible language and format.

This work is often unacknowledged in university reward and incentive structures (which focus primarily on scholar-to-scholar communication), though it provides one of the most productive and direct mechanisms for university research to impact national development imperatives. It shortens the feedback loop by which scholarly research gets into the hands of government ministers, community organisers and business entrepreneurs, all of whom may be able to use it for enhancing social welfare, growing the economy or spinning off new innovations.

For the purposes of this discussion, we will focus on the extent to which UCT Comm scholars utilise free Web 2.0 technologies to share their research and enhance their scholarly visibility, and then discuss how they engage with broader audiences by popularising their research.

[110] While communication on campus is relatively more intensive than at the other universities we profiled, some UCT personnel suggest that it could still be far more so. As one manager shared, "An academic can sit in their office and have a wonderful community of scholars that they can talk to, but they're in many different countries and it's all happening by email, and the person in the office next door won't really know what they're doing. And there's that kind of isolation. And then taking it more broadly, the one department will not know what the other department is doing and one faculty and the other."

Web 2.0 sharing

There are a number of freely available Web 2.0 technologies, or "social media", that would allow UCT scholars to overcome certain obstacles that derive from their context (such as geographical isolation from other international academics) and achieve goals that are important in a developing research environment (such as enhanced collaboration opportunities with others). However, these tools do not yet play a major part in the UCT Comm scholarly communication ecosystem, though they are used to a small extent.

We conducted a "shadows and footprints" exercise to determine Comm scholars' engagement with Web 2.0 technologies on the internet.[111] A "shadow" is a person's passive online profile that is created without any special effort on that person's part. It is usually made up of random bits of information drawn from events (conference attendance) or organisational contributions (to an academic professional association) that is made available on different websites. It is also generated by aggregators such as Google Scholar, which create an impression of a scholar's productivity and impact based on the number of citations it can connect to a scholar's articles or books. For many academics – both in Southern Africa and the global North – the only information available about a scholar comes from the shadows they have cast on the internet through their normal activities. They have not engaged with the internet in any strategic way to determine what the public learns about them and their work (Brown 2011; CIBER 2010; RIN 2009, 2010).

In contrast, a "footprint" is the actively made profile created by a scholar on personal websites, departmental webpages, social media platforms (LinkedIn, Facebook and Twitter) and scholarly profiling sites (Academia.edu, ResearchGate and Mendeley). For many scholars internationally, this simply means giving their CVs to a university web administrator to upload onto their departmental webpage. But for the more proactive, it means engaging in a concerted effort to present a coherent narrative of their research interests and activities, plus a list of (and links to) their research outputs. It may also mean a more regular form of personal communication to the public through tweets, shares and blog posts.

The only Web 2.0 tools that SALDRU scholars use with any frequency are Facebook and LinkedIn. A majority (56%) of the unit's members have Facebook accounts, though most use it for personal, not scholarly, communication. Meanwhile, 50% have LinkedIn profiles, with half using it actively (boasting dozens of connections) and half using it passively (with only a few connections). As a profiling service, LinkedIn is better suited to those trying to maintain professional mobility (by providing basic information about their work history) than creating a rich description of their research activities, but the low barriers to setting up an account and its perceived "seriousness", make it one of the easier Web 2.0 tools for UCT scholars to embrace.

In comparison, only 13% of SALDRU members have Twitter accounts, though none actively tweet messages themselves (at least not during our engagement with them). They are more likely to consume content, following the tweets of other academics, journalists,

[111] This research was carried out in September 2012 and thus may have changed slightly since then.

think-tanks and foundations. This low level of activity is similar to the global level of scholarly engagement with such Web 2.0 technologies (RIN 2010; Ware & Mabe 2010). Elsewhere, while scholars acknowledge the potential these social media have to enhance collaboration (Gu & Widen-Wulff 2011; Morgan 2012; Pearson 2010), many also see it as frivolous, lacking quality control and unnecessary for successful scholarly dissemination (RIN 2010). In SALDRU, the low level of social media could be a sign of both resistance to it and unfamiliarity with its potential.

However, due in part to SCAP's engagement with SALDRU, one of the unit's administrators has created and maintained an active Facebook and Twitter profile for SALDRU, sharing information about the unit's publications and seminars with a growing number of followers.[112] Though the unit's scholars themselves do not appear to be active consumers or producers of posts or tweets, the administrator has been able to use her knowledge of these social media use to reach those Facebook and Twitter users who are interested in SALDRU updates.

Beyond social media, the more specifically scholarly profiling platforms – Academia.edu, Mendeley and ResearchGate – plays a very small role in the unit members' scholarly communication activity, with only one using ResearchGate, two using Mendeley and five using Academia.edu (out of 32 members). One reason why this is the case is that virtually all have personal webpages on their departmental sites where they post information about their research interests and publications. Many have also posted CVs on those sites, making them feel that it would be redundant to post the same material on a different site.

In sum, because these scholars are active producers of academic content, they enjoy some level of visibility online. Their personal profiles are provided on their departmental websites and some of their outputs are profiled by journal or book publishers and are findable through search engines such as Google and Google Scholar (where articles are listed with citation counts provided).[113] But because departmental webpage profiles are often written more as a matter of administrative obligation than personal desire, they sometimes provide a thin understanding of scholars' work because the scholars do not invest the time or energy into developing profiles that would provide full pictures of their work. Moreover, because scholars do not always list their publications on their personal pages, their outputs on the internet appear as random or isolated rather than part of a

[112] SALDRU posted its first Facebook message on 2 February 2012 and has been an active communicator of unit news, events and publications ever since. A total of 115 Facebook users currently receive SALDRU posts in their newsfeeds (as of 16 November 2013). See: www.facebook.com/SALDRU. SALDRU's first Twitter tweet was posted on 15 March 2012, after a SCAP engagement. It reads, "Very good workshop with researchers from the #SCAprogramme at #UCT. Dissemination workflow, taxonomy and metadata practice in place." Since then, SALDRU has sent out 165 tweets to its 70 followers. See: https://twitter.com/SALDRU1

[113] Some journals provide useful metrics that scholars can check to see how their paper is being received. As one SALDRU scholar noted: "My *PLOS ONE* paper has been downloaded 450 times and that was only in June. So the open access issue is really interesting and quite attractive because you get a sense that people are interested in the work before you get a sense of that from the citations. It also shows you the number of times it's been tweeted and put on Facebook. My co-author tracks that. I'll rather just wait for the citations so that I can see who's actually used it rather than who's just downloaded it."

broader intellectual effort. Indeed, for many SALDRU scholars, their scholarly shadow is more pronounced than their scholarly footprint.[114]

Popularising research

The priority for most UCT Comm scholars is to share their research with other scholars through formal publication channels, but many also share their work with other audiences, including those in industry (accounting), government (economic policy) and civil society (socio-economics). While the outputs that are produced for these audiences (such as policy briefs, reports or presentations) are not rated as highly as formal outputs in the faculty's research assessment system, scholars are increasingly seeing the value of producing them so that their research stands a better chance of making a broader social impact.

For instance, during our engagement with SALDRU, we worked with the unit to help produce a policy brief (see Chapter 6) aimed at government policymakers and civil society organisations. Though many members remain cautious about translating their research for these audiences, they were positive about its potential impact. As one said:

> *SALDRU has started doing policy briefs and I think, quite soon, I'll have a body of work that speaks to factors that influence HIV prevention efforts and I'll be considering [producing a similar brief] when I have the current two or three papers finished. At this stage I don't know who the brief goes to and I don't know what the audience is. But what does attract me is that it will be brief sound bites, so people who are not interested in reading through journal articles may be more likely to read that and get ideas from the research. It could be a good way to increase readership of the articles already published as well. Even as a full-time researcher in the field, I can't keep up with all the research that is being done; hundreds of papers come out every week so I know there's no way policy makers can keep up to date. So the policy brief may be a good way for SALDRU to actually hit people that it otherwise has very little chance of reaching.*

Other Comm scholars reinforced this point about the relationship between output genre and social impact, with one stating: "If you want to be recognised by your peers then it's all about your publications. If you want to have an impact on public policy, then you might think of these briefs, if they work. Or you might want to go and ask government people if you can come and give them a talk."

Others suggested that this ability to reach different audiences was also a function of experience and expertise. One scholar explained that it was only after working on something for a number of years that a scholar could really think about translating it for different audiences: "For policy, it's not just about seeing a narrow picture; it's about

[114] This is also apparent in Google Scholar where only five of the 32 SALDRU members have availed themselves of the profile functions which allows them to group together all of their outputs under their personal profile. Rather than having all of their outputs listed along with those who have similar names as themselves, they can identify which ones belong to them. For an example of a SALDRU Google Scholar profile, see Murray Leibbrandt's at: http://scholar.google.co.za/citations?user=4_jykaYAAAAJ&hl=en&oi=ao

seeing a bigger picture and being aware of how things interact with one another. It's only after about five years that you begin to see these connections. So maybe it is not a good idea to have very junior people writing these briefs because they miss the big picture."

However, even though some Comm scholars have made the effort to disseminate their work broadly through some form of public engagement, they have not always come away with positive feelings. Many SALDRU members, for instance, mentioned negative experiences of speaking to journalists who often failed to accurately portray the insights of their research. As one stated, "so much of what is in the media is just rubbish, so it undermines the credibility of anything scientific which hits the media. They treat people as if they can't understand the science, so you are given so little information that you can't work out if it's good science or not."

One scholar who reached out to the media to share some HIV research said:

> *I've had three interviews with different newspapers. In all cases the journalists basically broke their promises. They never showed me what was going to be in press; they never responded to any follow-up questions, and did not gave me any feedback. I never even knew if the articles were published. So I'm not actually interested in the media at the moment. It's stressful and I don't know any journalists that I trust. I think it's very easy to twist things. The headlines can definitely be sensationalist. So I've never spent any effort building relationships with the media.*

Nevertheless, many Comm scholars are still open to dealing with public "translators" such as journalists, and others are taking it upon themselves to provide the skills necessary for non-academics to understand, and translate high-level research themselves. One complex form of translation and engagement can be seen in the way the NIDS project conceptualised its role in capacity-building and training. The project did not just seek to generate data, but sought to develop data analysis skills in South Africa and Africa more broadly. As one scholar stated:

> *So one of the things the Presidency wanted us to do is to create training programmes to increase the capacity of institutions and individuals to use the data. So a large part of my work here is to develop training programmes which target policymakers, but also academics from other universities and students to enable them to work with the data in a meaningful way. It's a struggle though. The level of statistics needed to understand the data is quite high. It's only at masters level that the students get the training to do rigorous work with this kind of survey data and the problem is that UCT has a very advanced curriculum and most of the other universities in South Africa don't.*

This same academic was in the process of developing an open educational resource to put on the web so that others could also benefit from this training opportunity. He had been attending meetings within UCT's Centre for Educational Technology (CET) promoting the idea of open educational resources in order to come to grips with the idea. He was also going to conduct training courses in a range of other South African universities,

including the historically disadvantaged tertiary institutions. The plan was to make an explicit impact on target institutions and offer both academics and students from those institutions the chance to come to UCT, "to offer them a space where they can sit and work with data, right in this corridor."

Finally, many of the academics spoke about how important their research was to their teaching. For instance, most postgraduate students were drawn in on current Comm projects, and many in Economics were working on either the NIDS or CAPS surveys. But engagement at undergraduate level was also mentioned, with one seeing it as:

> *a different form of translation really. When I teach, I look at how a student would be receptive to this material. You try to put yourself in their position. But I do think that as economists we train students in the way we've been trained. I try to tell them that this is where the policy relevance is, but I still pretty much focus on these academic relationships. I mean, at what point would you reward it [translation work] and say, "Look if you write these policy briefs this is going to count towards your tenure?" Obviously it counts as part of your service work.*

Thus, the popularisation of Comm research takes on many guises, a fact that both excites and concerns many scholars who are keen to make a broader social impact, but only if it is done so with their research represented accurately.

Number of research projects

When asked how many research projects they have been engaged in over the past two years, 14% of UCT Comm respondents said one, 18% said two, 14% said three, and 54% said more than three. This splits the faculty between 32% engaged in one or two projects and 68% involved in three or more. This suggests that the Comm faculty is a dynamic, engaged site of research production.[115]

Dissemination strategies through the career life cycle

The UCT Comm scholars we interviewed were highly self-reflexive about their role as academics, especially as it pertains to knowledge dissemination. While all were comfortable with the standard demands of their profession – lecturing to students, conducting research and writing articles for other scholars to read – many were still trying to figure out how they should feel about tangential opportunities that arise from their expertise, such as participating in policy development opportunities. A number had worked with and wished to incorporate some level of engagement with NGOs and policy development groups, but most felt a strong sense of collegial pressure to focus on producing peer-reviewed publications, especially during the early stages of their careers.

[115] Though it is impossible to say whether our survey results on this represent a level of research productivity – as a single project might entail as much work as multiple smaller ones – it allows for some speculation on the matter if the UCT data is compared to other data sets. With a 32:68 ratio between scholars who have been involved with two or fewer projects vs three or more projects over the past two years, UCT Comm staff members have been involved in more projects than their colleagues in the FHSS at UNAM (72:28 ratio), the FoS at UoM (62:38 ratio) and the FoH at UB (50:50 ratio).

This activity would do the most to bolster their career prospects, enhance their reputation amongst peers and earn them official recognition at the university.

This understanding comes through subtle and overt means. As one scholar related, "I spoke to my professor about working in an independent policy unit/think-tank once. He said, 'That's policy work, and you have to learn to do it, but at this point it's important to first develop a body of work. And when you're hitting mid-career, that's when you start worrying about the disseminations and translations.'" Thus, this young academic was encouraged to see this extra-collegial work as something to engage with only later in the career trajectory.

Another young scholar shared a similar experience, showing how important the role of mentors and supervisors is in maintaining a certain understanding of the UCT Comm identity: "I've been here for two years and as soon as I came in, X said, 'We need to sit down and talk about your work and how that relates to the things you do and also where you want to go in future with your own agenda.' He's been a great mentor; he's just brilliant."

But once scholars have received a solid mentorship and established themselves in their fields as experts, they start to understand the value that they could have in engaging with non-academic development practitioners. One scholar who had worked for a range of civil society organisations said:

> *For a few years I spent most of my time understanding what was happening in the policy community but I realised that it didn't matter whether you were working with trade unions or with government or with the private sector, the quality of research was quite low and informing very important policy debates with poor methodological work. So that's why I thought I needed a PhD and I chose this technically difficult course because I thought, if I'm going to make a contribution, I'm going to have to get to grips with it as there are very few people doing this. So the South Africanness for me in it is what you can do in relation to transformation of the society.*

This desire to make a contribution to the transformation of society can come in many forms, both through engagement directly (as above) or translation. As another scholar shared: "I like to teach; I love doing research. Now I have tasted the policy world, the exposure and the direct reward that it brings. I think I want to work on at least one policy brief every two or so years. Even if I'm not rewarded for it, I'm OK."

From this brief discussion, we can see how important senior scholars are to the socialisation of junior scholars into the UCT Comm culture, guiding them with words of advice through their career choices. Their focus tends to be on what would be good for the individual's career – a timeline that includes a crucial building-up phase followed only later by popular engagement and dissemination. UCT Comm scholars believe it is preferable for both scholars and society that academics engage with the public only after testing their research ideas with colleagues first, so that they not only enhance their career prospects, but ensure that the ideas that they contribute will be of the highest quality.

Rewards and incentives

The last element to explore of the UCT Comm scholarly communication ecosystem is the rewards and incentives system that, in part, guides scholars' research production and dissemination. The values analysis discussed above shows that scholars have multiple and often quite personal reasons for why they conduct research, but the official rewards and incentives policies represent a crucial leverage point for influencing the trajectory, quantity, quality and impact of that research.

SCAP considers the following as rewards and incentives:

- Financial remuneration, including research subsidies, patents and royalty payments, direct financial rewards such as research awards, etc. (Taylor 2003: 16)
- Increased research budgets, including conferencing budgets and travel expenditure
- Greater choice in postgraduate research supervision
- Greater choice in terms of research focus, methodology and outputs
- Decreased teaching and administrative responsibilities. (Smart 1978: 408)
- Invitation to prestigious academic societies, boards, review or policy groups
- Formal (institutionally driven) recognition from colleagues and peers (Moses 1986)

A number of these rewards and incentives are available for UCT scholars. The DHET provides research subsidies for specified publications, while the university offers:

- Various research funding top-up opportunities (including for conference and travel costs)
- Increased research and postgraduate supervision opportunities
- Excellence and merit awards (for those who make an outstanding contribution in multiple academic activities)
- Decreased teaching responsibilities for those formally identified as "Research Leaders"
- Participation opportunities for serving on academic boards and policy groups
- Peer recognition (both formal and informal)

UCT Comm's rewards and incentives for conducting and communicating research are largely determined by the DHET publication subsidy (in which universities receive funding for every recognised output produced by its scholars, discussed in Chapter 4), and its own "Guidelines for Performance Evaluation of Academic Staff" (which cover only Comm, but exclude the College of Accounting) (UCT 2012b).

While the DHET subsidy operates at a national level, it has a massive impact on the kinds of research that scholars conduct and the outputs they produce. Essentially, it encourages them to produce outputs that will be recognised by the DHET, so that they can bring in further research funding to the university and/or faculty. Producing other types of non-recognised outputs is often seen as a lost revenue-enhancing opportunity and therefore a less desirable use of one's time.[116]

[116] See Charlotte Mbali (25 February 2011) Published or be damned. *Mail & Guardian*, available at: http://mg.co.za/article/2011-02-25-publish-or-be-damned

In addition to the DHET's unique subsidy system, Comm guidelines for performance assessment also contain a number of provisions that encourage research production. The periodic promotion evaluations that scholars can motivate to go through offer the potential for a status and pay raise if they are deemed to have fulfilled the requirements set forth for the position, but it also offers the potential of rejection by one's peers, a painful social outcome to be sure. As one manager explained the process:

> *People are assessed on a four-year cycle, so they do a formal performance review every two years, and every four years their performance is rated as being at a performance level. If performance levels are found unsatisfactory, then they are not eligible for pay increases, so it directly affects their salary. That standing performance evaluation is also the basis for people's eligibility for promotion across the ranks and also now we have a merit bonus system.*

Thus Comm scholars go through both quadrennial assessments and ad hoc assessments when they apply for promotion (which assess their entire careers, not just the previous four years). During these assessments, they are evaluated according to four categories of activity: research, teaching and learning, leadership and management, and public and professional service (including social responsiveness). The first and last categories (research and service) bear the most on our discussion of scholarly communication.

Regarding research, the guidelines state that "a good, fully competent researcher contributes to knowledge in his/her field of research, at a level appropriate to his/her rank." The evidence for this competence includes (UCT 2012b: 2):

- Papers in accredited academic journals (or if the journal is not accredited, evidence needs to be provided of the academic standing of the journal)
- Major research projects such as masters or doctoral dissertations
- Chapters in scholarly, peer-reviewed books
- Authorship of scholarly, peer-reviewed books
- Papers in peer-reviewed conference proceedings
- Applied research reports
- Preparing competitive grant proposals and/or obtaining research funding from outside the university
- Being rated as a researcher by a recognised research body (e.g. NRF)

Thus, the faculty stresses not only the primacy of the research role in a scholar's work, but also research production that is aimed primarily at fellow academics through journal articles, books, book chapters and conference proceedings.

Regarding public and professional service (including social responsiveness), the guidelines state that staff members are assessed according to their contributions "to bodies outside the University." While this includes various types of service – as office bearers in professional societies, as editors of research journals, as members on national research or education committees and as advisors to governmental regulatory bodies – it also comprises activities that deal with disseminating scholarly research to non-academic audiences. The guidelines include (UCT 2012b: 3):

- Being asked to give public lectures or participating in public education
- According service to NGOs, including participation in committees and councils, as well as contributions to policy forums
- Communicating and diffusing the results of academic expertise and research to the public media
- Preparing policy documents for public bodies, companies and civil society agencies
- Publishing results from consultation to a profession closely linked to the candidate's field of study
- Conducting professional and private work based on the staff member's academic skills and which contributes to scholarship
- Authorship of textbooks
- Senior staff members being recognised for assisting junior staff in making contributions to public and professional service

Thus, the Comm faculty (and UCT in general) does desire that scholars look beyond the academic community for communicating their research, though this desire ranks well below that of communicating with fellow scholars. As Table 5.1 shows, while academics are given scores of between 1–10 for each of the four categories relative to the staff members' current job levels and their agreed-upon activity weighting, their service work and communication to outside audiences will likely rate far less than their other activities.

Table 5.1 UCT Comm scholars' performance assessment weights

Scholarly Activity	Weight
Research	25–50%
Teaching and learning	25–50%
Leadership and management	10–25%
Public and professional service (including social responsiveness)	10–25%

While this weighting system tends to place a higher premium on research and publication activity than at other Southern African universities, UCT Comm scholars did not believe that this focus was as intense as it is in other parts of the world. For instance, one senior academic commented, "I don't think we're on a publication mill like they are in the USA. I think if we were on a publication mill I'd probably be a lot more vociferous about the importance of some of these other [outputs and measures of achievement]."

However, the key question to ask about this rewards and incentives structure is not just whether it is resulting in the desired quantity and quality of research outputs, but whether it is having the impact that the faculty, university and government want it to have. For instance, are Comm outputs helping to:

- Secure international recognition and impact the field? (as the faculty and university wants)
- Usher in a knowledge economy? (as the government wants)
- Spur national and social development? (as all parties want)

The answer to the first two questions is largely "yes". Certainly within Africa, UCT is the most "recognised" university for research impact, and Comm members are well-connected to scholars around the world. The faculty is also a large, dynamic body that is responsible for training scholars, researchers, accountants and other types of people who help drive a knowledge economy. Though it is difficult to quantify the faculty's impact in either of these regards, Comm members feel confident that they are making a positive impact on both scores.

Regarding whether their work spurs national and social development, many Comm scholars believe that it has the potential to do so if it is seen, understood and acted on by the right people (such as policymakers, civil society personnel, industry players, entrepreneurs and so forth). The problem has been that they are less incentivised to communicate their work to these audiences than to other scholars (as we have seen above). Thus, most of their outputs end up in scholar-to-scholar communication channels with long feedback loops, meaning that they circulate within a relatively bounded academic sphere for a long time until they are either forgotten or they are accepted as "knowledge", thereby entering a broader public sphere of communication.

In many cases, this long feedback loop makes sense because it is useful for ideas to be vetted by colleagues who can critique, refine and enhance them. But the long feedback loop can also add an unnecessary delay to the dissemination of good ideas to members of the public who could leverage them for developmental purposes in their own contexts.

There are three ways in which the scholarly communication feedback loop could be shortened so that non-academics can engage with scholarly research. The first is to promote one-on-one relationships between scholars and other audiences that allow for them to explore ways to leverage the research for development, financial gain, etc. This is a method that UCT encourages, and it provides services for helping connect academics with industry personnel. There is great benefit in this, at least for the potential partners involved, though it is a fairly "expensive" undertaking, because it requires significant investments (in time, infrastructure, contacts, etc.) by the university to achieve even a small number of lucrative connections. Nevertheless, it is very much worth it.

The second approach is to publish scholarly research in an open access fashion so that anyone with an internet connection can access and read it. This is the approach that many developed world scholars are taking, often informed by changing government and funder policies. There are costs involved in this approach too, but they tend to be spread out within an institution. More importantly, the public benefit of open access is literally immeasurable because it is impossible to determine in advance the impact that a piece of scholarly research can have for a business, community or NGO that could never have afforded to do the research. Also, open access allows for the "law of unintended consequences" to open up new opportunities for research, as different people utilise the research in their own unforeseen ways. This is one of the reasons why SCAP encouraged UCT to embrace OA dissemination because it offers an egalitarian, progressive and ethically appropriate method of communicating research to the nation and the world, much of which was publicly financed in the first place. Thus OA has the potential of shortening the scholarly feedback loop down to the time that it takes for a computer user to search for, find and download an article.

The third approach is to make sure that scholarly ideas and research results are communicated to the public in a format that is accessible to them intellectually. For instance, due to government ministers' time constraints, policy briefs are often the best format for communicating a set of ideas to them. For NGOs and community organisations, reports are useful because they offer the evidence necessary for making informed decisions, but without them being shrouded in relatively insider academic debates. And for the public, op-eds, briefing papers, blog posts, and radio and TV interviews are often the most easy-to-consume formats of knowledge. This typically involves an act of "translation" from the jargon-laden academic research output into broadly accessible language. However, these are usually considered beyond the scope of a rewards and incentive policy, treated as "extra" activities that are "good", but not worth incentivising officially. At UCT, they are considered marginal scholarly outputs, though they make up part of the social responsiveness category of contribution. However, this type of communication often has the greatest opportunity to impact social policy and development because it gives useful research knowledge to the public in a way that it can understand.

With these points in mind, it is worth asking again whether UCT Comm's rewards and incentives are achieving the impact that it wants. To put the question visually (Figure 5.9): UCT Comm's values should inform its mission; its mission should inform its policies (rewards and incentives); and its rewards and incentives policies should yield the impact that it desires. But do the rewards and incentives actually lead to the impact that the university says it desires?

Figure 5.9 Visual representation of rewards and incentives' relationship to values, mission and impact

While SCAP believes that UCT Comm's rewards and incentives help it achieve many of its goals, we also suggest in the following chapters that it would benefit from incorporating an open access element to achieve the kind of national and international impact that it desires.

With the above discussion in mind, SCAP asked UCT Comm scholars, "What incentives could increase your production and dissemination of research outputs?" They responded primarily with these answers:

- Nothing: "happy as things are", the appropriate "incentives are already in place"
- Time: "reduced teaching and administrative load"
- Money: "direct financial incentive"
- Recognition: "clearer criterion relating publication to promotion"
- Administrative support: "collaborative help and mentoring in terms of journal selection"

These responses suggest that while promotion is a useful tool for promoting research, other types of incentives would be useful as well.

We also asked Comm scholars, "What incentives could increase your production and dissemination of *less-traditional* research outputs (i.e. other than books or journal articles)?" They responded in a generally negative tone, many stating that they were "not sure that they [alternative outputs] are needed." Others said that these outputs would have to be recognised for promotion: "If these outputs were considered in terms of promotion opportunities, I would be more inclined to consider such outputs."

These responses suggest that alternative outputs are not a strategic priority for Comm scholars (though some produce them) and would have to be incentivised more directly by the university if they were to consider including them in their dissemination campaigns.

The African context

The preceding discussion of UCT scholars' research and communication practices is underpinned by a broader set of conditions that can be called "the African context". Such a term overly reifies what is in fact a dynamic, diverse and differentiated environment, but it is a useful term for UCT scholars who are often forced to reflect on their particular circumstances due to the comparisons that they – and outsiders – often make between academic reality in Africa and the global North (the primary reference point for international academic norms and standards).

During our research, we asked UCT scholars, librarians and managers, "How does the African context impact UCT research?" We did not define what the African context was, but let them define it through their answers. While each person offered unique views on this subjective question, they mentioned a number of themes often enough to provide an image of how UCT Comm personnel see their particular geographical, historical, cultural, and demographic environment impacting their research.

Their responses tended to fall into three categories – deficits, challenges and opportunities. All were modified by one overriding caveat: that while UCT may be located in Africa, it is not defined by it. It is exceptional (in both senses of the word – a point we will return to shortly).

First, UCT personnel identified a number of deficits that, to them, characterise the African context of research. Most of the deficits revolve around funding, leading to low salaries for academics, inadequate infrastructure, insufficient resources and an unsatisfactory distribution of knowledge between African countries. All of this impacts research activities in negative ways. As one manager noted, "Most African researchers and academics are seriously underpaid. And therefore extra time that they have is generally spent on earning money to supplement their salaries, not to do … research." The key question to ask here – and which we will answer below – is whether UCT staff believe that this "Africa of deficits" defines their own reality at UCT, or whether it is a depiction of somewhere else (the "real" Africa).

Second, UCT staff identified a few challenges characterising the African context, focused mostly on intra-continental collaboration. Most hoped that these would go under the "opportunities" rubric in the future, but for the moment, a number of obstacles rendered this as a challenge. For instance, one manager, discussing the problems of establishing durable collaborative enterprises across African universities, stated that, "There are

language issues with many of the French-speaking scholars. But it's not just language, it's different institutional cultures, different ways, different literatures you're dealing with, different approaches. We haven't bridged those divides. We just haven't had enough contact I think." This ends up encouraging university personnel to often just partner with Northern universities, which enjoy greater capacity and funding.

Third, UCT personnel identified two key opportunities that, for them, also characterise the African context, namely the developmental potential of their work and the belief that African research can make a contribution to the world. One manager said that "We have a major obligation here to our own environment, and the kind of scholarship we do, and how we see scholarship as a broad thing and not just reduced to ISI articles." One of the members of our pilot site, SALDRU, agreed, taking the point further: "[Our research] is driven by South Africa's policy, South Africa's problems. So the sort of model of SALDRU is 100% anchored in Africa and then even further down into South Africa."

However, if we compare UCT academics' thoughts on the African context to those of their counterparts at UB and UNAM, we find that they approach the question from quite different perspectives. Unlike those scholars, who see the African context as synonymous with their own, UCT personnel view the "African context" as somewhere "out there", beyond UCT, beyond the Western Cape, and perhaps even beyond South Africa. The "African context" is not the one that defines their research reality, but an external set of conditions that merely influences elements of their work. Of course, they understand that the university is located in Africa, but they do not see UCT as being defined by the same qualities that characterise the "African context", which, for virtually every academic we interviewed at each Southern African university, is understood as: poor, under-resourced, under-capacitated, marginal, brimming with uncaptured potential, and racially black. Similar to the responses given by UoM staff – who also see the African context as somewhere beyond their Indian Ocean island setting – UCT staff see their university as located in a more complex and ambiguous context.

This understanding of the African context as somewhere "out there" – and "not here" – is common in South Africa, not just at UCT.[117] However, this perspective has a special valence in the Western Cape, which, of all of the provinces in the country, complicates the notion of an undifferentiated "African context". UCT is located in the only metropolitan city in sub-Saharan Africa where the majority population group is not racially "black African".[118] It enjoys relatively high standards of living, service provision, and

[117] Perhaps the most striking public expression of this perspective occurred when South Africa's President Jacob Zuma tried to cajole Gauteng residents into paying for a controversial road e-tolling system by stating that, "We can't think like Africans in Africa. It's not some national road in Malawi." The remarks were made off-the-cuff to participants at an ANC Manifesto Meeting, thereby revealing how taken for granted these sentiments were for the President, and also how he assumed that his audience would agree with the idea. While the remarks caused some minor embarrassment for Zuma, it was not so much because South Africans were angered by his characterisation of "Africa" as being somewhere else (indeed, his ANC audience laughed out load in agreement when he made his comments), but simply because Malawi protested at being used to exemplify what Zuma was portraying as "backward" thinking. See Adrian Ephraim (22 October 2013) Zuma: Don't think like an African – pay up for e-tolls, *Mail & Guardian*, available at: http://mg.co.za/article/2013-10-22-zuma-dont-think-like-an-african-pay-up-for-e-tolls.

[118] According to South Africa's 2011 Census, every province in the country (which is the most racially diverse country on the continent) has a "black African" majority, except for the Western Cape where the "coloured" group is larger (49.6% compared to 33.4%). See Clayton Barnes (14 February 2013) Cape's population by the numbers, *IOL News*, available at: www.iol.co.za/news/south-africa/western-cape/cape-s-population-by-the-

infrastructure development, along with a relatively well-educated populace (in comparison to the stereotype that people, including South Africans, hold in their minds about "Africa"). It has also been a port city for 350 years, connecting it to the peoples, goods and cultures of foreign lands, meaning that residents have long imagined themselves as belonging to a larger context than just continental "Africa". Combine this with the fact that Cape Town was the first site of European colonial settlement in the country, and it becomes clearer why the Cape remains an ambivalent space in the national and continental imagination. It appears to be an exception to a relatively stable rule concerning what Africa is and is not.

This perspective arises from a larger discussion about South African – and Western Cape – "exceptionalism". That is, South Africans constantly wonder to what extent their country is "African" when, in so many ways (economically, militarily, demographically, industrially, politically, historically), it resists easy comparison to other African countries. South Africa is the outlier, the asterisk that is both similar yet different.

The Western Cape functions as a similar category within South Africa because of its unique ecological, historical and demographic make-up. But the discourse of exceptionalism that South Africans use to understand the Western Cape – and UCT, to a certain extent – is profoundly ambivalent, because their exceptionalism to a morally defined "African" norm is viewed simultaneously as a marker of prestige and pathology.

Positively speaking, UCT is "exceptional" in that it is excellent at what it does. It produces high-quality, high-impact research that shapes multiple fields of inquiry. This is noted worldwide, most significantly (in the minds of the UCT management) by the *Times Higher Education* rankings. which have consistently placed UCT just outside the top 100 universities in the world. No other university in South Africa, or the rest of Africa, comes close to this high recognition. For this "achievement", UCT personnel and others who identify with the university feel proud.

Negatively speaking, however, UCT is also "exceptional" in that some view its so-called "achievements" (such as high rankings) as the result of its continued embrace of European norms and standards, which creates a gulf between the university and the national populace, which lives in a thoroughly "African" reality (Kamola 2012; Mamdani 1998). Seen thus, UCT's "excellence" is construed as the result of an embarrassing and pathological desire to live up to the standards set by South Africa's former colonisers, not as a bold and critical choice to re-appraise what higher education should look like in a postcolonial setting (Nyamnjoh 2012; Wood 2010). As a political critique, this perspective suggests that UCT is not so much "exceptional" as simply an "exception" to the needs of the post-apartheid present.

But what is clear is that UCT scholars do not really compare themselves to other African scholars or institutions. They compare themselves to the universities that they admire (or attended as graduate students) in the North. They are not displeased by being ranked

---

numbers-1.1470153. The same goes for South Africa's metropolitan cities, where Cape Town (which resides in the Western Cape) is the only large city in the country where black Africans do not comprise the majority (42,4% coloured compared to 38,6% black Africans and 15,7% whites). See StatsSA, City of Cape Town, available at: http://beta2.statssa.gov.za/?page_id=1021&id=city-of-cape-town-municipality [accessed 17 November 2013]

number one in Africa, but they also understand that very few other African universities are even ranked in the top 500 of global universities. So the achievement does not satisfy them; they want to be considered as part of the global, not just African, elite.

Conclusion

It is clear that UCT is a highly productive research university driven by a collegial institutional culture (Bergquist & Pawlak 2008) and supported by a relatively generous national funding system. As an elite university, the challenges it faces are not so much that of the various "lacks" that typify many other Southern African universities – lack of money, resources, time, staff, capacity, graduate students, etc. – but that of remaining in touch with the realities of its surrounding environment (which, for so many South Africans, *is* defined by a series of "lacks").

Another challenge it faces is recognising that the world of scholarly communication has changed and that the traditional mode of dissemination no longer suffices to assure visibility and impact. It was this challenge that SALDRU faced when SCAP approached it at the beginning of our programme, and it is to our implementation initiative that we now turn.

Chapter 6.
The SCAP implementation initiative

SCAP's research design called not only for the collection of data from our various pilot sites, but the active stimulation of these sites through customised implementation initiatives (or "interventions") that sought to improve the state of scholarly communication within them. Five principal assumptions underpinned these initiatives. They would:

1. Be treated as experiments.
2. Address a challenge articulated by project participants in pilot sites and other institutional stakeholders.
3. Be publishing-oriented, addressing content profiling and dissemination through new tools and technologies.
4. Utilise open approaches (including open source software and publishing platforms) wherever possible.
5. Yield insights that could be extrapolated to the rest of the institution, developed in line with current institutional strategy, e-infrastructure, and international standards and protocols around interoperability.

SCAP scoped and fulfilled the implementation initiatives during our four site visits to the institutions. The first visit aimed to surface the contradictions in the scholarly communication ecosystem, while the latter three visits sought to create consensus around the nature of the initiative, identify stakeholders and policy frameworks, and implement the agreed-upon pilot process.

While the formulation process was participatory, the principal investigation (PI) team played a considerable role in interpreting and translating the desires of informants into a feasible intervention. This was due to two factors. First, while informants had a clear sense of institutional challenges, they were often unable to articulate desired solutions to them because they were unaware of the new technologies that might overcome these challenges. Second, the PI team also had the responsibility of protecting the funder's interests and ensuring that the implementation activity adhered to open access principles.

While the Faculty of Commerce (Comm) served as SCAP's research site at the University of Cape Town (UCT), the Southern African Labour Development Research Unit (SALDRU) served as our pilot site for implementation activity. As an independent research unit, which draws its members largely from the UCT Economics Department, it offers a unique vantage into a "mode 2" academic entity within the university. It is one of many at UCT, thus we hoped that our engagement with it would offer insights of use not only to other comparable units, but to other departments and faculties across the institution.

In this chapter, we will examine the process and results of our implementation initiative at UCT. We will do so by identifying scholarly communication challenges within the unit, determining the focus of our intervention, putting the three elements of the initiative into action and considering what lessons were learned through this engagement.

Identifying scholarly communication challenges

In 2010, SALDRU – a high-profile research unit with global standing – underwent an external review (one year prior to the SCAP engagement) in which one of the critiques levelled at it was that it lacked online visibility. While the unit had a well-designed and functional website, it was falling short in terms of detailed search functionality and ease of use in content navigation. SALDRU's problem of online "findability" was compounded by the fact that, as a research unit tasked with engaging government and civil society in the poverty alleviation debate, it produced a wide range of outputs besides journal articles and book chapters (content that would traditionally be available through publisher websites). The wealth of research contained in its working paper series, for instance, was largely invisible and unfindable via an internet search.

The unit was conscious of this deficit and its executive managers had a list of core areas they wanted to address by the time of the first SCAP change laboratory workshop in June 2011. They identified three main areas of activity that they felt could improve their scholarly communication:

1. *Make content more accessible*. SALDRU had a great deal of research output to its name, but it was not visible on the internet. Even on the unit's website, content was often difficult to find. An important sub-component identified within this was the need for standardised staff profile pages. At the time, some staff members had profiles while others did not; some also shared varying kinds of content via their profile pages but this content was not centrally curated and was therefore not searchable. The sharing of content appeared haphazard.
2. *Produce more popular writing about the unit's research*. This was a particular challenge in the SALDRU structure, given the diffuse nature of the unit and its egalitarian management style. There was an absence of hierarchical managerial entities that could function as the "official mouthpiece" of the unit. This made delivery of a cohesive "SALDRU perspective" on a policy issue a challenge.
3. *Boost informal communication amongst the SALDRU community*. Given the unit's cyclical grant funding structure and fluctuating staff cohort, the unit required a more regular internal communication system so that staff could be kept aware of the work their colleagues were engaged in.

Participants in the first SCAP workshop highlighted the fact that, even though they wanted the unit to have a stronger public impact, this objective was not even reflected in its mission statement. Participants felt that this would need to be incorporated into the formal mission so as to shape and reflect the scholarly communication strategy of the unit.

During our research, SALDRU was one of 72 UCT-affiliated research units conducting work in a wide range of often niche and interdisciplinary areas. These units enjoyed varying levels of support from the university administration, and while those units situated on any of the UCT campuses would receive the standard information technology (IT) service provision afforded to the rest of the university, few (if any) received any centralised support aimed at addressing content curation and visibility. SALDRU's challenge was therefore not unique, but a shared feature of many units, departments and faculties.

This problem was made more acute by the fact that UCT did not have an institutional repository at the time of the SCAP initiative. This type of infrastructure would have provided an avenue for units such as SALDRU to profile their work online. The absence of an institutional repository was, however, not identified as an explicit challenge by SALDRU participants, because they had for some time been profiling their research on the Research Papers in Economics (RePEc) site, an online content aggregator designed to enhance the dissemination of research in economics. In the minds of many SALDRU members, they already had a repository in RePEc, a fact that accorded with their own discipline's norms and practices. This, combined with the fact that they hosted and administered their own website, meant that they did not look to centralised institutional e-infrastructure for scholarly communication opportunities.

Determining a focus for SCAP implementation activity

Based on the input SALDRU members, the PI team proposed a pilot intervention process comprising three core objectives:

1. Improve content curation to address the findability of SALDRU resources via internet search engines and the unit's website. (Some website redevelopment would form part of this work.)
2. Establish a round-table forum for developing an organisational perspective on policy issues and experimenting with various methods of engaging with policy discourse in a more coordinated manner.
3. Develop internal communication tools (with particular focus on the website and an electronic newsletter).

Increasing findability and visibility through improved content curation

In an investigation into the online visibility of South African poverty alleviation work, Czerniewicz and Wiens (2013) found that much of it was comparatively invisible because it lacked metadata and institutional repository connection that the more visible work enjoyed. This exemplified the importance of the relationship between research, publication, content curation and social development. The principle of content visibility

on the internet being largely contingent upon good content curation and metadata practice informed the SCAP implementation approach and process of optimising the functionality of the SALDRU website. Boosting online visibility was therefore intrinsically viewed as an indexing and metadata exercise.

Our preliminary investigation indicated that there was a significant amount of SALDRU content online, but that it was hosted in disparate locations and was poorly indexed. In order to explore the best means to address the situation, SCAP resources were utilised to bring a part-time content architect from UCT's Digital Libraries Laboratory (a postgraduate research unit in the Computer Science department) on board. The SALDRU content architect, reporting directly to the SCAP programme manager, would function as an intermediary to translate the desires of the community, assess the affordances of current e-infrastructure, and work with stakeholders in the SALDRU community to implement new curatorial systems and processes. The content architect would also be tasked with ensuring that systems were as open and interoperable as possible.

The desire for interoperability in SALDRU content systems not only revolved around linkages to international content aggregators and indexing services, but also to institutional e-infrastructure and content services. The SCAP programme saw itself as having an important role in brokering this improved cohesion, as SALDRU members appeared disenchanted with institutional systems (according to their statements in the change laboratory workshops) and were reluctant to pursue any strategy that would make them beholden to institutional systems, particularly with regards to IT service provision.

Despite this legacy of disenchantment based on prior experience, SCAP reopened the dialogue between SALDRU and the central information and communications technology services based on the notion that the preservation and sharing of content via secure, institution-based infrastructure, which could be linked and shared elsewhere, was preferable to the investment in building content collections with third-party organisations. The issue of depositing content in external or discipline-specific repositories such as RePEc would therefore be examined.

Intervention 1: OpenSALDRU

With these objectives in mind, the SALDRU content architect was brought on board in November 2011 to conduct a situational analysis, provide content description and indexing and explore mechanisms for content profiling via the new content curation system.

Phase 1: Situational analysis

Because SALDRU had already been producing a wide range of outputs for over 20 years by the time SCAP engaged with it, it had accumulated a number of curatorial systems and e-infrastructure mechanisms. Since there had been no prior imperative to deal with this strategically, these systems had been developed in piecemeal fashion over the years, with certain areas functioning more optimally than others. The presence of existing systems had the potential to be a positive factor, as legacy systems can serve as a foundation for

new tools and operational systems; it could also prove to be a hindrance because user communities might be invested in previous systems out of habit, making them reluctant to move to new systems despite their benefits. As much as possible, SCAP wanted the pilot initiative to leverage the affordances of existing systems and e-infrastructure, and also to work with current stakeholders invested in those systems so that they felt a sense of ownership in the new process. The buy-in of the SALDRU community was seen as crucial to ensuring this remained sustainable beyond the duration of the SCAP programme.

Our situational analysis revealed that the SALDRU website was run from the Joomla platform and integrated a document archive (DocMan) that was used to store, manage and facilitate access to research publications. Five critical shortcomings of this system were identified:

- Inconsistencies in the way representational information was presented for different collection types.
- Lack of use of controlled vocabulary for metadata elements such as author details and publication date (which generally led to inconsistencies on the frontend).
- Absence of interoperability. Other than integration with the RePEc portal, there appeared to be no provision for other machine-to-machine interoperability mechanisms such as the use of the Open Archives Initiative for Metadata Harvesting Protocol (OAI-PMH).
- Insufficient metadata exposure. Important metadata elements such as author details were being embedded as HTML elements rather than data in discrete fields. This would generally make it difficult to implement a browse feature.
- Inadequate information discovery tools. Specifically, the search features associated with the website were rudimentary and the lack of a corresponding browse feature limited the ease of finding information, particularly when looking for related publications.

The purpose of the situational analysis was to derive a set of recommendations and a process for addressing Phase 2, content curation. But in order to proceed, we had to decide which content platform to use. The Joomla platform used by SALDRU was a content management system (CMS) tool for web-based content curation and sharing. But SALDRU's research needs called for more control around metadata and preservation, which we thought would be better handled by a DSpace repository system rather than CMS. DSpace is a free and open source repository platform, currently regarded as the industry standard in repository software. We arrived at this determination after the Content Architect evaluated the suitability of the CMS (Joomla) vs the repository (DSpace) approach. Table 6.1 shows the SCAP comparison matrix.

Table 6.1 Comparison of CMS vs repository benefit for SALDRU content curation

Feature/attribute	Repository (DSpace)	CMS (Joomla plugin)
Interoperability	OAI-PMH, OpenSearch, RSS, SWORD	Limited via RSS feeds
Metadata management	Flexible and comprehensive metadata scheme(s)	Limited metadata elements
Preservation	Standards-based metadata schemes	Freeform descriptive metadata
Resource discovery	Advance searching and browsing, with faceted features	Basic search available

Based on the outcomes of the evaluation exercise and consultation with institutional stakeholders, curation experts and SALDRU, our situational analysis concluded with a decision to invest in a repository-based system for the implementation initiative. Thus we started by replacing the Joomla CMS with a DSpace repository.

Phase 2: Content description and indexing

A large part of 2012 pilot activity was spent building the SALDRU DSpace repository. While the development of a DSpace installation can be undertaken in a matter of days or weeks, the process of engaging with SALDRU in the conceptualisation and design of the repository, so that it reflected the nature and structure of the unit's work, was time consuming. We decided that the DSpace instance would remain on local hosting infrastructure, operated by SALDRU-appointed staff, whereas its development would take place in line with institutional systems and policies. This was to ensure maximum interoperability with institutional initiatives that sought to boost the visibility of UCT research.

Phase 3: Explore mechanisms for content profiling

Once the DSpace platform was installed, the Content Architect consulted with SALDRU to develop a comprehensive set of metadata elements that would be used to identify the digital objects. This was done in line with the *Journal of Economic Literature* classification codes used by RePEc and other economics content aggregators to identify economics resources. This was important for maintaining interoperability with the RePEc portal and operating within disciplinary norms and standards pertaining to content curation. Following an extensive consultative process to articulate the metadata schema, content deposit could begin.

This process culminated in the launch of the OpenSALDRU[119] DSpace 1.8.2 repository in April 2013. At the time of writing, Apache Tomcat 6.0 was being used as the Servlet Engine, with PostgreSQL as the backend database management system. The Content Architect based the site's appearance on the Mirage theme ("Mirage Configuration and Customisation") in collaboration with SALDRU content curation staff.

Intervention 2: Round-table policy forum

The first change laboratory workshop identified that the unit wanted to produce popular writing about its research in order to access policymakers and non-academic audiences, and to be able to develop consolidated policy perspectives for sharing with the public.

As a first step in achieving these objectives, it was proposed that the SCAP pilot activity incorporate a trial of a round-table forum on a pertinent issue on which there is a need for policy discourse. It was suggested that this process be piloted by choosing a topic central to the current SALDRU research agenda, aggregating results from the research it

[119] OpenSALDRU Repository, available at: http://opensaldru.uct.ac.za

has produced in this area, deriving conclusions, producing policy recommendations (if necessary), and writing something either in the form of a policy brief or press release.

Subsequent to the first workshop, the SCAP Research Coordinator facilitated further exploration of the concept by identifying the topic of teen pregnancy as a focus for the process. This would be undertaken in collaboration with a scientific writer who would participate in the round table and produce a series of outputs in line with a SALDRU brief. The writer would ideally have familiarity with the subject and policy environment, though not a member of the SALDRU research community. The steps for the SALDRU pilot round-table process are outlined in Table 6.2.

The round-table process was initiated in November 2011 and completed by mid-January 2012. The final output was a policy brief called "Revisiting the 'crisis' in teen pregnancy: What is the impact of teen births on young mothers and their children?" (Menendez *et al.* 2011). The process was completed with the assistance of an external team consisting of a scientific writer and designer based at another UCT-affiliated research unit – the Children's Institute – who had experience in producing policy briefs. Their expertise was central to the speedy completion of the exercise and the professional nature of the product.

Table 6.2 Phases in the SALDRU pilot round-table process

Activity	Description
1. Constitute a working group of SALDRU specialists in subject area.	Research Coordinator identifies stakeholders in the SALDRU community and invites participation.
2. Bring writer on board.	SALDRU Research Coordinator identifies writer, briefs and commissions work.
3. First round of consultative interviews.	Writer interviews working group for foundational perspective.
4. Round-table logistics finalised.	* Date set * Panel convened * Venue arranged
5. Round-table meeting held.	Closed, three-hour event. Proceedings recorded for transcription.
6. Writer produces report proposing outputs (ideally to include press release, popular media article, policy brief, op-ed).	These ideally to include: * Conclusions of round-table forum * Policy recommendations
7. Outputs prepared.	Syndication of outputs to produce a suite of materials for articulated purpose/audience.
8. Outputs used as trial in showcasing range of outputs on website in line with developments taking place in parallel stream of SCAP activity.	

This activity represented a first layer of exploratory activity, with the feasibility and value of the endeavour being evaluated for case-study purposes. While it was the unit's ambition that forums such as these be replicated in the future, the primary value of this foray was to track what resources were required and identify factors influencing success or failure in this domain. There are other areas that will need to be explored by the unit to further its experimentation with research popularisation or translation.

Intervention 3: Internal communication tools

Many SALDRU members noted that the unit's large, distributed, interdisciplinary staff contingent made for a highly dynamic group, but one that struggled to communicate with each other regarding day-to-day SALDRU activity and research interest. Because of this, the unit proposed that SCAP pilot activity incorporate exploration of internal communication tools to enhance internal communication, specifically through an electronic newsletter. It was hoped that the newsletter could also play a marketing role and provide a means of communicating with the broader SALDRU community. This newsletter has since been established, disseminated through multiple digital means.

Lessons learned

Although this pilot initiative was located in a single academic unit, the issues that surfaced pertain to multiple areas of the institution, specifically around the question of how to articulate institutional workflows for the profiling of a range of outputs via a unit-level content repository. The following lessons were learned during the process:

Lesson 1: Because SALDRU has been producing a wide range of outputs for more than two decades, it has accumulated a number of curatorial systems and e-infrastructure mechanisms. Since there has been no prior imperative to deal with this strategically, these systems have been developed in a piecemeal fashion, with certain areas functioning more optimally than others. Enhancing the visibility all of those outputs requires that they fall under a single, cohesive strategic curation and profiling system.

Lesson 2: In the absence of an institutional scholarly communication policy or platform, this pilot demonstrates the possibility of promoting decentralised dissemination models while indicating the personnel investment required. In SALDRU's case, this called for the creation of a communications officer position.

Lesson 3: Research entities require significant internal capacity and careful coordination with institutional technical support staff to ensure that their communication activities adhere to institutional requirements and best practice. (This includes linking OpenSALDRU to other content-aggregating spaces and institutional e-infrastructure.)

Lesson 4: Most academics – including those at SALDRU – have varying levels of familiarity with new scholarly communication tools, technologies and practices (such as DSpace repositories), but they generally do not have the time or expertise to explore, evaluate and use them in a fashion that would optimise their dissemination activities. This requires specialists (such as content architects) who can advise and establish such technologies while training specific in-house staff members (such as communications officers) to maintain them.

Lesson 5: Third-party intermediaries can play an important role in helping academic entities define a strategic approach to scholarly communication activity. Members of the SCAP team played this role at SALDRU, demonstrating the importance of engaging with the desires of the community (manifest in statements such as "we want a functioning website" and "we want our content to be findable online") and translating those into workable plans addressing content curation and scholarly communication activity.

Chapter 7. Challenges, contradictions and opportunities

A key element of SCAP's research was to identify the main challenges, contradictions and opportunities in the University of Cape Town (UCT) scholarly communication ecosystem, especially as they pertain to the dissemination of digital research outputs (articles, conference papers, reports, etc.). By researching the practices of the Faculty of Commerce (Comm) and conducting pilot activity with the Southern African Labour and Development Research Unit (SALDRU) in the Department of Economics, we were able to assess elements of this ecosystem as they pertain to unit, faculty and institutional concerns. In this chapter we want to provide an analysis of this multi-level ecosystem that not only reflects UCT scholars' reality, but offers critical and constructive insights for moving the discussion forward concerning the promotion of optimal scholarly communication at the university.

By "optimal" scholarly communication, we mean the dissemination of digital outputs that are open access (free to the user), visible (quickly findable on the internet), profiled and curated (typically on an institutional repository), understandable to audiences that would most benefit from the knowledge contained within them, aligned with the mission and values of the university and the country, ambitious and original, adequately funded (by the university or another funding body), recognised by the author's colleagues and university as valuable, and of a high quality. This is an admittedly particular understanding of what optimal scholarly communication is, but for the sake of the following discussion, this is what we mean by it.

Challenges

The challenges most impacting UCT Comm's scholarly communication ecosystem are those related to identity, institutional culture, focus, mission and marginality. In this discussion, a "challenge" is defined as a crucial factor in the scholarly communication ecosystem that inhibits the optimal production and dissemination of research. A

challenge can be a durable feature of that system (such as funding constraints) or an ephemeral one produced during a transitional phase (such as a nascent research culture), but each stands as an obstacle to optimal scholarly communication, and it is not easily remedied through the actions of any one agent (management, scholars, government personnel). Challenges are often the inadvertent by-product of a broader social, political, educational or financial concern, such as the global economic recession or the rapidly changing requirements of the information and communications technology landscape. Typically, there is little that the institution itself can do in the short-term to overcome these challenges, but through long-term strategic planning and implementation, they can certainly ameliorate them and, in some cases, turn them into opportunities.

Identity: Afropolitanism vs Eurocentrism

In the post-apartheid era, UCT has had to transform itself from a largely white institution into a multiracial one. This process has not been without its problems and, indeed, it continues today. One element of that process has concerned the cultural and epistemological orientation of the institution. Up until recently, UCT was considered a bastion of Eurocentric thought, steeped in colonial traditions, aligned with Western ideals.[120] Despite the university's relatively progressive stance during apartheid[121] – and its various attempts to get around the racial restrictions of the time[122] – its resistance to nationalist power through the language of liberalism simply confirmed its Eurocentric credentials for many. However, the university has set out to become a more "Afropolitan" institution that seeks to research and disseminate knowledge from an African perspective.

To make the university more Afropolitan, the UCT Strategic Plan (UCT 2009: 2) seeks to:

- Increase the number of academic staff from the rest of the continent.
- Increase partnerships with leading researchers on the rest of the continent to consolidate and build long-term networks and increase the number of postgraduate students from the rest of Africa.

---

[120] The taken-for-grantedness of this notion was made clear during a recent debate between UCT vice chancellor (VC) Max Price and popular legal pundit Judge Dennis Davis. When the discussion turned to UCT's new approach to race-based admissions for students, "Davis mentioned the popular critique that UCT was still 'very much a Eurocentric white university', instead of being truly African." Quoted in Stefanie Busch (23 August 2013) Debate and reflection marks opening of Vice Chancellor's second term, *Varsity*, available at: http://varsitynewspaper.co.za/news/1708-admissions-policy-debated-at-vice-chancellor-s-second-term-inauguration. This perception is reinforced by the raft of "transformation" policies that UCT has had to adopt in order to change from a "Eurocentric" to an "Afropolitan" university. For the university's take on the issue, see: www.uct.ac.za/about/transformation/

[121] According to KR Hughes, "In South Africa, the doctrine of academic freedom was principally developed at two 'open universities' – Cape Town and Witwatersrand – which in the 1950s sought to resist government attempts to extend apartheid and impose racial exclusiveness on their admissions and hiring policies. Deriving from the Anglo-Scottish tradition, the open universities formulated their stand overwhelmingly in terms of the notion of university autonomy. TB Davie's [a UCT VC during apartheid] famous slogan listing basic freedoms: 'the right of the university to decide who shall teach, who shall be taught, what shall be taught and how it shall be taught' was a ringing affirmation of university autonomy." See KR Hughes (2005) *On academic freedom and university autonomy: Some notes on their meaning, history, and possible future importance in South Africa in the 21st century*. Note to the Task Team on Government Involvement in Higher Education, Institutional Autonomy and Academic Freedom (HEIAAF) – Written submissions to the Task Team – 2006. Available at: www.che.ac.za/sites/default/files/publications/d000173_11_UCT_Hughes_17-Oct05.pdf

[122] See UCT History: www.uct.ac.za/about/intro/history/

- Use and advance UCT's archives to strengthen the university as an intellectual hub for the continent.
- Grow and consolidate partnerships in the rest of Africa by identifying faculty, programmes and projects to which UCT could contribute.
- Support the dissemination and publication of work on Africa and increase the impact of local and regional journals.

There are three pertinent issues to unpack here, namely representation, collaboration and consciousness. First, regarding representation, the Afropolitan ideal calls for certain demographic changes at the institution, with the recruitment of more (black) students and staff members from the rest of Africa. This not only increases national diversity on campus, but contributes to the broader desire for racial transformation at the university. To this end, UCT has had success at recruiting students from across the continent (though less so for faculty members).[123]

Second, despite the institution's desire to collaborate more with other African universities, UCT personnel agree that it is often more difficult to build and sustain relationships on the continent than it is with Northern partners. One manager described the dilemma:

> *There is a battle, a political battle, within UCT and within Southern Africa, of "do you partner and work with people in the developed North?", where there are none of those problems [lack of funding, infrastructure, etc.], or "do you make the political choice and do the hard yards with [an African partner]?" If you were an economist, it would be a no-brainer. You would not work in Africa because the intellectual profits would not be there. It's too hard to develop and sustain a relationship. But there is a political element to it. And certainly some of the work that is done could not be done in other contexts. So the contextual factors combine with the kind of situatedness of social, environmental and other problems that particularly face Africa that have to be tackled by African researchers or would be better tackled by African researchers, by which I mean working in Africa.*

This statement captures the ambivalence about UCT's place in Africa, and its relationship and obligations to the continent. On the one hand, the university would like to collaborate with African partners, but finds it difficult to maintain those partnerships for financial, logistical or linguistic reasons. On the other hand, the administration feels anxious about the university's "Eurocentric" heritage and outlook (as one manager put it), and thus wants to claim an "Afropolitan" identity through these politically enhancing relationships with other African universities. As the manager above describes it, the economics do not add up, but the political gains are too important to pass up. Thus the university often tries to make those connections with other African universities, though these have resulted in mixed outcomes. The reality is that UCT enjoys far more

[123] Since 2005, the university has hosted students from over 30 African countries each year. During that same period, students from SADC countries (not including South Africa) have typically made up between 8–11% of the student body while the numbers of non-SADC African students has hovered between 400 and 700 students. See: www.uct.ac.za/about/iapo/overview/statistics/

collaborative connections with Northern universities (where many faculty members earned their graduate degrees) than African ones. In this sense, an Afropolitan identity remains a goal that is still to be achieved.

Third, the Afropolitan ideal is supposed to indicate an institutional-level shift in consciousness, perspective or orientation, away from Eurocentric paradigms to locally derived ones. The nature of that shift is open to debate, but one of the primary ways in which it is assessed by UCT students and scholars is through the university's curricular commitments.

But what constitutes an Afrocentric or Afropolitan curriculum? In the late 1990s, a few years after the end of apartheid, the challenges involved in answering this question became clear when the UCT Centre for African Studies hired world-renowned Africanist Mahmood Mamdani as its director, in which part of his duties included teaching an introductory course on African Studies. When Mamdani set an intellectually robust and politically provocative syllabus for the course, the UCT administration suspended him from teaching it and replaced him with a team of UCT academics who took a more "remedial" approach to teaching the students. Mamdani challenged the administration's decision, demanding a public debate concerning what should constitute an African tertiary education. This controversial episode became known as the "Mamdani Affair" (Kamola 2012; Mamdani 1998).

While the debate revealed an institution at an early stage in its transition to a more open educational mission, it is unclear whether UCT is now any more "Afropolitan" than it was then (in terms of consciousness or curriculum),[124] or whether the term is meant more for marketing purposes than a statement of epistemic identification (Nyamnjoh 2012). Indeed, the word "Afropolitan" is usually expressed by the UCT administration in conjunction with other corporate management terms – such as "world class", "top rank", "quality", "innovation" and "excellence" – which, as Wood (2010: 232) states, "are invoked repeatedly, as if frequent repetition will bring into being that which they denote, or will summon up the divinities of the market to work a transformative magic upon the institution." This is not to suggest that the administration is not sincere in its commitment to Afropolitanism (as it has defined it), just that it is difficult to disentangle it from a more strategic and marketing-related understanding of the term.

The double-bind in which UCT finds itself – and which it appears to be trying to finesse through the politically optimistic language of "Afropolitanism" – is that its global standing, or prestige, is defined by a Northern collegiate class with which it identifies. The benefits of membership in this group of globally competitive universities is profound, leading to significantly more funding and collaboration opportunities than if the university did not enjoy this recognition. But such conformity to "international" norms has its drawbacks in a context where local realities require institutions to assert themselves creatively, confidently and independently if they want to address them.

[124] Since then, the Centre for African Studies has been "merged" into the newly created School of African and Gender Studies, Anthropology and Linguistics in the Faculty of Humanities, a move that many students and staff believe amounted to a "closure" of the Centre and a serious reduction in the commitment by the university to the study of Africa. See: www.uct.ac.za/usr/press/2011/closing_down_cas.pdf

In the realm of scholarly communication, the importance of this tension between Afropolitanism and Eurocentrism pertains to the role that research plays – or fails to play – in developing the society in which it occurs (Chan, Kirsop & Arunachalam 2011). Though these Afro/Euro-isms need not be seen as opposing ideals (as both would claim certain shared values), they do tend to signify different perspectives on how research should be conceived and disseminated. Put simply, the "Eurocentric" liberal tradition of scholarship that UCT derives from and has long identified with – and which still enjoys the most prestige internationally due to the normative dominance of North American and Western European academies – valorises curiosity-driven research that is disseminated through peer-reviewed scholar-to-scholar publications that travel along lengthy feedback loops within the academy before being taken up and accepted as "knowledge" by the broader society. This conventional approach to scholarly research and dissemination is typically underpinned by a diverse and well-resourced research infrastructure. But it also has a history, one located largely in the North.

This contrasts to the more developmental, or African/Afropolitan, approach to research and dissemination as defined by the last half-century of post-independence African university research. For basically every country on the continent outside of South Africa, universities have been few per nation and the research that they have produced was expected to have direct, instrumental application for social benefit. As Chapter 3 explains, these state universities were essentially extensions of the civil service, harnessing scholars' intellectual talent for the teaching of future generations and for the problem-solving capacity they generated through their research. Though many of these universities – and especially their academics, who had often received their graduate training abroad – sought to model their activities on the colonial metropoles' more famous institutions, the exigencies of the African context made such modelling either unsustainable or unrealistic. As the main (or only) research entities in many of these countries – with very modest research budgets – the various flagship universities did not have the same luxury as their Northern counterparts of producing curiosity-driven research that could be channelled and trapped in a long academic feedback loop. Their research often had to be developmentally relevant and accessible, at least to those who could do something with it (such as policymakers).

This general distinction between "Eurocentric" (or "Northern", or "international", or "conventional") and "Afropolitan" scholarly communication practices is explicitly recognised by UCT in its policy documents; for example, in the Research Strategy "Afropolitanism" is mentioned when the focus is on community engagement, development and relevance. Indeed, one of the sub-sections of the document is titled "Bringing research into the community: Being Afropolitan."[125] Thus, the identification of "Afropolitan" research as that which is local, relevant, developmental and community-oriented is essentially taken for granted.

The larger point to make here is that UCT's identification with two apparently divergent research and dissemination philosophies constitutes a real challenge for the institution. As our research with Comm, SALDRU and the Research Office showed, many scholars

[125] UCT Research Strategy, available at: www.researchoffice.uct.ac.za/usr/researchoffice/info/policies/UCT_researchstrategy.doc

remain wedded to conventional research and communication practices that do not disseminate knowledge beyond the academic community (thereby reducing the university's Afropolitan endeavours). However, this is not to say that the university cannot use these opening decades of the post-apartheid era to navigate its way through an important academic experiment that it appears (perhaps even inadvertently) to be involved in: that of leveraging its prestige and resources for contributing to the social development of the country and the continent, while at the same time not sacrificing its prestige or resources in the process. Often, it has been difficult to balance the two imperatives.

Our caution here – that of identifying "Eurocentrism vs Afropolitanism" as a challenge at this admittedly transitional phase in the university's history – is that South Africa's very recent and very real history of racial oppression against black Africans requires that formerly white institutions such as UCT may need to not only re-examine its demographic profile (which it is doing) and its collaborative connections on the continent (which it is also trying to do) to become Afropolitan, but also the way in which it communicates research knowledge, so that those who have been excluded from the academy in Africa can still benefit from the research that is taking place here.

Institutional culture

As a second challenge, one of UCT's greatest strengths is also its greatest weakness when it comes to scholarly communication. Here we are referring to the university's "collegial" institutional culture (Bergquist & Pawlak 2008). On the one hand, this collegial culture provides a sustainable and enriching environment for a highly productive academic research staff. Scholars hold substantial power at UCT, enjoying a degree of autonomy from the central administration. This is empowering for the academics, allowing them a good deal of latitude when it comes to picking projects and doing research. On the other hand, such collegiality makes it difficult for the institution to quickly adapt to new imperatives – such as embracing open scholarly communication strategies – because power is too decentralised for broad imposition or enforcement. Change rarely happens at the university based on administrative fiat, but occurs after a long process of engagement and debate across all of the faculties, which individually decide how to proceed, in line with their own traditions, missions and values.

As a university with multiple campus locations across the city, the difficulties involved in pushing for institution-wide change are significant, because most of the faculties operate in geographically and intellectually isolated "silos". Echoing the description of many of our interviewees, one manager described scholarly communication in UCT's silo-structure:

> *UCT is the biggest prairie with the largest number of silos I've ever seen. I mean, this is more siloed than any university I've worked in. And it has something to do with its age and the particular structure of faculties. They're very autonomous, they're spatially dispersed and they're very competitive. So funding comes down through the silo, which means that promoting inter-disciplinary work is very difficult.*

In the rapidly changing world of scholarly communication, this can be a problem, in which creating a situation some departments or faculties have embraced a modern, open scholarly communication paradigm while others have yet to start a conversation about it. UCT's central administration, which is currently engaged in thinking about this issue, does not have the authority – nor the inclination – to simply require that all faculties abide by any new strategies that it embraces. Any institution-wide changes in this "siloed" environment take a long time, involve significant political sensitivity and ultimately include the buy-in of the individual faculty members.

Sharing many of the qualities defining a democracy – participative, deliberative, egalitarian, messy – UCT's collegial culture requires lengthy periods of time for it to change. Usually this is good, in that when change occurs, it has been thoroughly debated and legitimised. But sometimes when there is urgency in the change required, the process can be frustratingly slow.

Local vs international focus

Both the UCT Comm rewards and incentive structure and the National Research Foundation (NRF) rank "international" recognition as more valuable than "national" recognition for university scholars. Indeed, the only way that academics can become full professors in the Commerce Faculty is for them to have an "international reputation as an active expert in the field", a quality that is substantiated through having "papers in top-ranked international academic journals", a "strong international academic peer review of applied research reports, chapters in books, professional journals, and/or conference papers", "keynote addresses at international research conferences," and other achievements. A similar requirement for an "international" reputation is made by the NRF for granting scholars the coveted "A-rated" status.[126] This is based, presumably, on the assumption that when scholars achieve a certain level of excellence in a field, it will be confirmed by the recognition of a much broader academic community than just the local one.

However, this elevation of international recognition over national esteem is based on a questionable relationship between scale and excellence. In reality, the deep exploration of a topic that is of immense importance locally, but perhaps not internationally, is quite common in developing countries. Work on African languages or certain locally prevalent diseases might be considered marginal in their respective linguistic and medical disciplines, meaning that anyone who works on them may never achieve the kind of international acclaim that someone who works on a more globally popular topic could. Because, as it stands, what the international community believes is worthy of scholarly attention is dependent upon a host of factors that often have nothing to do with South Africa's local reality.

The UCT Strategic Plan (2009: 10) appears to recognise the limits of this internationally oriented self-assessment system while simultaneously reconfirming its support for it:

[126] According to the NRF definition of rating categories, "A-rated researchers" are those "who are unequivocally recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs." See: www.nrf.ac.za/files/file/NRF%20Ratings_2013/Rating%20categories_approved%20EEC%2013%20February%202013.pdf

> *While recognising the limitations of bibliometric measures of impact and the need to avoid reducing research excellence to simple measures of impact, we must acknowledge the strategic importance of these measures, as the basis upon which global and national university rankings are made. Various measuring instruments identify UCT as the top research university in Africa. However, a recent study shows that if the field-normalised score of the impact of our academic departments is compared to that of similar departments in the rest of the world we are often below the mean impact of our global competitors. This means that, though we are doing well, we can do better. How, then, can we have a greater impact? We must improve four aspects of our research, namely its (a) focus, (b) level of internationalisation, (c) visibility, and (d) support levels, including support along the full innovation chain in respect of inventions and other research outputs with marketable possibilities.*

This begs the question of how appropriate such an internationally oriented assessment system is: does such a rewards and incentives structure align with the university's mission?

On the face of it, this system would appear to promote "prestige" over "relevance" (a question with which we will deal more substantively below), even if the actual promotion assessment process allows for more nuance than this. But for the university moving forward, a key challenge will be to identify the constituents to whom it feels accountable:

- A local one (fitting in with its "national" development ambitions)?
- A continental one (fitting in with its "Afropolitan" intentions)?
- A global one (fitting in with its "international" desires)?

The answer to this question will have a great impact on the kind of scholarly communication strategies that the university embraces in the future.

Teaching vs research vs practice

As discussed earlier, the UCT administration is highly responsive to changes in the global university ranking system. However, ranking systems tend to play up the aspects of scholarly activity that can be measured and compared easily – such as levels of published research output in WoS-rated journals – rather than those that are more difficult to quantify, such as the quality of teaching or the level of engagement with society or industry. For UCT Comm, which has long had a strong tradition of teaching, research and practice (with industry), the pressure to focus more on research has proved to be a challenge for those in professional fields where teaching, training and industrial engagement are more important for their students than their research outputs.

Many Commerce students will use their skills in a practical, applied manner in the future (as, say, accountants), so a good portion of the faculty's efforts must be to train practitioners of a specialised craft. This means that teaching has a central place for the staff, especially for members in professionally oriented departments such as Accounting. It is through their students who go on to become employed practitioners that many Comm faculty leave their most lasting mark in higher education. Indeed, because of this,

the College of Accounting is judged by a different set of criteria than the rest of the faculty.

Second, in other departments, such as Economics, faculty members are primarily assessed by their published research contributions to the field. They teach and engage with the broader discipline of economics, of course, but research holds pride of place in such a department, and it is becoming increasingly important in every other department.

Lastly, there are faculty members in both Economics and Accounting that hold industry positions as well, who teach and research at the university while also working for, or consulting with, operational business firms. These are practitioners who bring their experience to the classroom, but for whom the academic identity is a partial one.

These contrasting pressures and motivations play a dynamic and usually positive role in driving academic activity in the faculty, but many scholars (especially in Accounting) believe that they are being forced to take on a greater research role, which will negatively impact their ability to teach or engage with industry. One of the key reasons this is important is because, as one academic noted, "For us, new knowledge actually happens in the business world, and as accountants we react to that. Because we say, 'Well, this is a new type of financial product or new type of transaction, how would we do the accounting for it?' A lot of the guidelines are developed outside by institutions and best practices and professional bodies."

Moreover, research outputs do not provide the same financial incentive as industry engagements. As one scholar explained, "We've got this conflict: if you do more teaching, you get paid; if you write a textbook, you get paid; if you get consultancy, you get paid; if you do research, you get nothing. Why would you then get research?" She continued, "There's a big conflict between working here, having to research, having to do these outputs vs working in commerce and industry, not having to do research and earning double or three times the salary."

Thus, the faculty, which includes both academic and professional departments, incorporates a variety of norms, traditions and values regarding what a scholar's optimal contribution should be. The challenge is to preserve the strength of those differences while both responding to the pressures for greater research production and the need for a more open dissemination plan.

Marginality

A final challenge limiting UCT's scholarly visibility is the continent's multiple forms of marginality. It is geographically marginal, located far from the major population centres of Eurasia and North America (Olukoshi 2009: 17) and intellectually marginal, producing less than 1% of "visible" scholarly research knowledge (Abrahams, Burke & Mouton 2010; ASSAF 2006; Gray 2006; Limb 2007; Tijssen 2007). While most UCT scholars do not get overly concerned about these larger structural challenges, they recognise that their marginal condition makes it difficult for them to set disciplinary agendas and gain access to important ideas.

Geographically, the real problem is that UCT scholars lack face-to-face contact with the masses of scholars in their fields who are located primarily in the North. They do their

best to attend international conferences and invite overseas scholars to the university to share their research, but they can never achieve the density of engagements and the broadness of exposure that typify intellectual exchange at well-resourced Northern institutions. Thus, according to one SALDRU member:

> *Another big challenge is just access to a lot of quality research. So if you go sit for a year through the development seminar at Michigan or Princeton or Chicago, in terms of what you're going to be exposed to, [it] stimulates and generates new ideas. [But] you're in a sleepy hollow here [at UCT], so … this is just a very small pond. We all know each other, whereas in the bigger US market – and within their actual institutions – it's close for people to come and visit and so they get exposed to a whole lot of stuff.*

This geographic distance, and the relatively low number of academics in the region, also makes it difficult for UCT scholars to set the agendas in their respective fields. As one university manager stated, "the challenge is to kind of make our issues the issue." For instance:

> *The EU will have this wonderful funding available, but ultimately it's their agenda. And you've got to fit in with that agenda and how do you do it in such a way that you manage to research the issues you want to research, get the money you want and somehow play their game. And it's not easy, because always it seems to be that the agenda comes from up North and then we get tacked on.*

A number of scholars reiterated this concern, at both the funding and disciplinary levels. They find it difficult to set the intellectual agenda in their field, as the power structures that shape what are considered "important" debates – especially through journal editorial decisions – are located in the global North. This reduces the type of visibility that scholars would be able to achieve if they were able to set the terms of a debate globally.

Contradictions

While the UCT Comm scholarly communication ecosystem faces the challenges discussed above, it is also beset by a number of "contradictions" – elements within the system that hinder it from operating optimally, usually in a directly oppositional manner. Unlike challenges, which are typically obstacles that emanate from broader social, political or financial contexts, contradictions emerge from within the activity system and can be remedied from within it.

The primary mechanism by which we identified contradictions in the UCT scholarly communication ecosystem was by assessing it through the CHAT triangles that we employed during our change lab workshops. This was an intensive process that allowed SCAP and the academics to explore every node of their activity system, evaluating whether there were any misalignments ("contradictions") in it that could be addressed.

In this section, we discuss three key contradictions currently impacting UCT's scholarly communication ecosystem: prestige vs relevance, scholar-to-scholar vs scholar-to-community/government, and rewards and incentives.

Prestige vs relevance

By almost any measure, UCT is the most prestigious, high-ranking university in Africa. It has earned this reputation through the sustained production of high-quality research and the employment of world-renowned scholars, scientists and doctors (including the highest number of NRF- and A-rated scholars in the country currently).[127] A number of further factors contribute to this reputation, but perhaps key among them is that UCT has, both during the apartheid and post-apartheid eras, sought to conform itself to the standards and values (autonomy, liberalism, etc.) of the globally dispersed, but Northern-dominant Anglophone academic community that plays a normative role in adjudicating "excellence", "quality" and "prestige" in higher education.

Indeed, for universities in Africa, prestige is largely gained through the successful comportment to Northern-derived norms and standards about what should define a tertiary institution. As the Times Higher Education (THE) World University Rankings methodology suggests, this includes measures such as the number of WoS-rated journal articles produced by the university's academic staff, the number of citations those outputs supposedly obtain (their impact factor), the university's industry income and its level of "internationalisation". It does not necessarily include more abstract metrics such as the institution's developmental impact on the local community.[128]

At UCT, this achievement has encouraged the administration to strive for even greater international recognition. This is a largely beneficial goal, as one manager explained, because "it means that you can attract top quality academics and top quality international students, the more highly ranked you are." In many ways, the quest for and achievement of prestige and recognition has a snowball effect, leading to yet more prestige, recognition and opportunities for the university.

But the administration's quest for prestige can appear to be an unproductive preoccupation at times. For instance, when UCT dropped ten places (from 103rd to 113th) in the THE World University Rankings in October 2012, a top director quickly sent out an email to the university community explaining that the management was both "delighted" and "disappointed" by the results. He stated that he was "enormously proud" of the university for its "achievements" and that "this kind of fluctuation is not a worry." But this sentiment was undercut later that day when he sent a second communiqué which suggested that, if one looked at the scores of the various categories making up the

[127] UCT has the highest number of NRF-rated researchers and A-rated researchers of any university. It currently has 416 (of 2,471 total) NRF-rated researchers, including 33 A-rated scientists. The University of Witwatersrand is in second place with 16 A-rated scientists and about 250 NRF-rated scholars. See DIRCO (20 September 2013) SA home to Africa's top two universities, available at: www.dirco.gov.za/dircoenewsletter/newsflash76-20-09-2013.html; and Kemantha Govender (9 April 2013) UCT records highest number of NRF-rated researchers in SA, *Research SA*, available at: http://researchsa.co.za/news.php?id=1453

[128] See the Times Higher Education World University Rankings methodology, available at: www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/methodology

total final score, the THE figures showed that UCT had actually improved.[129] The end result of this impression management effort was that it revealed that it believed that the THE rankings were extremely important, that they were worth dissecting in detail (reinforcing the ranking's credibility) and that the administration was indeed worried about the university's change in position.

This episode shows the difficult position in which administrators are placed when trying to justify their institutions' "performance" based on arbitrary standards set elsewhere. Such rankings – while influential to some degree on how the public perceives universities' value and prestige – are based on criteria that may or may not have anything to do with what a particular university believes is the best way to achieve its own mission or to assess its own performance. In this case, the administration does believe in key elements of what the rankings purport to rate, that of research excellence and productivity (prestige).

But the administration also knows that other key elements that it treasures – such as an Afropolitan identity or the production of research that is socially relevant and applicable in the local context – is absent from the rankings' criteria. Thus the university's sensitive response to its fluctuating fortunes in the rankings inadvertently reifies them, a questionable achievement. As one manager stated, "the issue remains to what extent should the universities be pushing in that way if the criteria for a ranking are not conducive to contributing to the country in an appropriate way."

The contradiction between prestige and relevance at UCT goes much deeper than the preoccupation with public rankings, however. Through their internal reward and incentive structures, most UCT faculties continue to encourage the production of scholarly outputs in high-ranking journals, not because they are likely to have an increased social impact, but because they will then earn a high Impact Factor (a measure of prestige within academic circles that is also important in university ranking systems).

Of course, the desire for prestige need not conflict with the desire for relevance, but there is a danger when its starts to become the "real" measure of the university's value in its own eyes. What should simply be a productive tension between two values can end up becoming a distracting contradiction pushing the administration to set goals according to externally defined criteria rather than locally meaningful ones. It also impacts dissemination decisions, as prestige is largely determined by scholar-to-scholar communication rather than the scholar-to-community or scholar-to-government communication that is so crucial for relevance. It is to that issue that we now turn.

Scholar-to-scholar vs scholar-to-community/government communication

One of the reasons why UCT is so highly regarded in the rankings is because its scholars communicate most of their research in high-ranking journals and books that are written for and consumed by other scholars. This scholarly exchange is crucial for the

[129] The statement reads, "In fact, UCT's scores rose over the year in all but one of the system's measurement categories." It was only in one category – "industry income" – where UCT's score fell from 97.5 points to 87.3 points (weighted at 2.5% of the total score), thus negatively impacting UCT's ranking more than was perhaps necessary. Thus, when seen in this light, UCT's retreat in the rankings was not to overshadow the key point, that "our ranking remains a measure of consistently high international standing and reputation."

development of knowledge and the adjudication of ideas, but it is characterised by a long feedback loop in terms of when those ideas contribute to broader social, industrial or governmental discourses. Even when research could benefit community or national development, they often remain trapped in the scholar-to-scholar communication nexus, because they are inaccessible to non-academics who lack journal subscription access and who may be excluded by the discourse. Only after a long period of peer engagement do the key ideas emerge from that debate to shape other sectors of society.

For many debates, this is unproblematic. The long feedback loop assures that only the highest quality ideas – which are eventually accepted as "knowledge" – emerge from the academy for public consumption (at least in theory). But in many cases, a shorter feedback loop would be more beneficial for communities, industries and governments, as they seek fresh ideas to enhance development and promote innovation. If scholars were incentivised to not only produce outputs that are read by their peers, but outputs that are read (and "readable") by non-academic constituents who can use that knowledge in their own activities, they would increase the reach and impact of their research.

At the moment, UCT scholars are primarily rewarded for producing articles, books and book chapters in high-ranking publications. They are not, however, incentivised to publish those outputs in open access journals (which would allow non-academics to read their research), nor are they encouraged to "translate" their work into accessible formats, such as briefing documents for government or civil society bodies. They receive minimal recognition for these efforts, thus if they do happen to produce such "alternative" outputs, it is often because they were asked to do so by a fee-paying consultancy or a funding agency, not because it forms part of a consistent, strategic approach to dissemination.

Hence, many scholars do have some experience in writing for a broader audience than just academics. Through consultancy work for industry or government, they take their rigorous academic research and write it in a way that their partners can understand and use. But these are thought of as "one-offs", not part of a typical scholarly communication approach.

Many UCT Comm scholars also admit that they feel less confident writing for non-academic audiences, in part because they were never trained to do so. For them to be interested in producing more alternative outputs, they would require training or, better yet, assistance.

Despite these challenges, the potential for UCT academics to communicate with the broader public – especially civil society groups, industry and government – has never been greater owing to the open platforms that they can use to share their research. Rather than just aiming to reach other scholars, they can now increase the number of constituents that respond to their work. This is not without its hazards, especially since much academic work is so specialised; however, it would be a mistake to think that no one outside the academy could understand or leverage that work. Only through open communication can the "law of unintended consequences" serve to increase the potential utility of an output as different audiences respond to it in light of their own needs.

Rewards and incentives

The DHET's publication subsidy system promotes the publication of only scholar-to-scholar outputs. It does so without regard for the open or closed status of those outputs. This creates an incentive for the university management to promote the production of only high-prestige outputs because the university only receives government subsidies for outputs that are published according to the SAPSE list (discussed in Chapter 4). That list does not include the type of outputs that would be more accessible to civil society, industry or the government, a fact that radically limits the potential of the SAPSE system to leverage academic knowledge for development. The government is unwittingly rewarding a narrowly understood sense of "excellence" at the expense of openness, accessibility and developmental capacity. It also undercuts local open communication efforts by commoditising such activity, making certain types of communication (open, non-SAPSE communication) seem worth less in the eyes of the university management and, by extension, scholars. A UCT manager explains:

> *If you look at our research units, they all have, as part of their operational process, a website in which papers are placed. And those papers are spread out all over. They've got a network of people with whom they communicate. Some of them do this extremely successfully. But the university doesn't earn a red cent from doing it. It's only if they have sponsors who say that this is a requirement of the research unit that there's any economic justification for it.*

This fact – that the university does not earn any subsidies for non-SAPSE communication – shapes the priorities of units, departments and faculties that want to maximise the revenue-attracting potential of their work. Yet the types of output genres (policy briefs, reports, etc.) that are published on open platforms – and which are most likely to have the most developmentally relevant potential – are not on the government's lists. The SAPSE paradigm, which in other ways creates a positive, powerful inducement to produce more research, also serves to minimise that research's social impact because it is not based on a modern, digital open dissemination strategy.

Opportunities

With these challenges and contradictions in mind, it is now important to consider the aspects of UCT's scholarly communication ecosystem that are working well. The CHAT methodology allows us to do this because it not only shines a light on an ecosystem's contradictions, but also illuminates areas of alignment (thereby allowing site members to leverage them and improve the functioning of the system as a whole). Because the fact is, UCT is already a highly productive research university and possesses many of the qualities necessary for enhancing its scholarly communication.

In this section, we identify promising "alignments" that arise from an analysis of the UCT Comm activity system. We will do so by looking at the opportunities afforded by institutional culture, collaboration, funding and intermediaries.

Institutional culture

As was noted earlier in this chapter, two elements characterise the institutional culture at UCT: power is decentralised, existing mostly at the faculty and individual levels of the hierarchy; and peer expectation is the most important factor driving research production. With a relatively autonomous and empowered academic staff operating in an environment of constant peer pressure to produce research outputs, it is not the desires of the administration that define this institution but rather the collective ambitions of the scholars as expressed through their faculties.

But the institution's "collegial" culture does not mean that it is not also highly competitive and comparative. Indeed, as has been discussed earlier, UCT scholars and administrators are constantly comparing themselves to their international colleagues, competing for attention in a global knowledge exchange. This is good news for two reasons.

UCT's cosmopolitan research environment

As described by a UCT manager:

> UCT's staff complement is incredibly international. There are not a majority of South Africans as far as I know. We have a lot of continental Africans here who are themselves very mobile. Many of them have come through European and American universities to come here. We've got a lot of Europeans – a lot of staff members are not English first-language speakers. And I think that in itself also produces a sort of dynamism. You're aware of the size of the world. Where if you're in Gaborone – and I have been to the University of Botswana, I gave a seminar there – there were quite a lot of ex-pats, but many of them were at the end of their career where they're winding down. These are not people who are pursuing postdocs, who want to get ahead, whereas here there are huge populations of international students coming, going. So this is a happening place. And it's a very beautiful place and it's well-served by transport and so forth. But the staff, the intellectual capital here is a lot greater than any other university. UCT has over 30 A-rated scientists. I think the next best university in the country has six or seven. It's just colossally bigger than anybody else. We've got more NRF-rated staff members than any other university. So you've kind of got a critical mass. It's just pumping, you know … it's just got that high vibration.

First, this is a highly efficient ecosystem for producing research, requiring far less bureaucratic energy than other ecosystems defined by either managerialism or absolute autonomy. Peers regulate each other's behaviour in a collegial environment, goading and encouraging each other to produce yet further research, in comparison to other systems

where such inducements must come from a strong centralised administration or from one's own fluctuating sense of motivation. But when research production relies too much on external (managerial) or intrinsic (individual) motivators, resistance (to an overbearing central administration) or disinterest (as a result of flagging personal desire) in the research enterprise can ensue. While UCT scholars face the same kinds of personal motivation issues as scholars elsewhere, their buy-in and participation in a peer-regulated, research-driven environment gives it a sustainability and consistency that is difficult to match in other types of institutional environments.

Second, the competitive nature of this environment means that, even though many UCT Comm scholars appear locked in a "traditional" way of disseminating research, they nevertheless remain aware of the activities of their peers who might be experimenting with new open communication approaches. Though most scholars at UCT have not been "early adopters" of open communication methods, they are certain to embrace them if OA becomes the globally dominant norm. Indeed, the administration is already in discussions about how to engage with OA going forward. Hence, a competitive environment is a responsive environment, a key element that will shape the future of scholarly communication at UCT.

Gateway status

One of the key benefits UCT receives as the highest-ranking university in Africa is that it attracts a number of collaborative opportunities with overseas academics, universities and research-funding agencies. This enhances the capacity of UCT scholars to not only conduct their own original research, but to participate in international collaborations that can result in high impact outcomes. This is due to UCT's already existing capacity to host or participate in research partnerships and also the wide range of expertise that it possesses in certain fields.

As one manager explained, "There's lots of collaborative research [at UCT]. An American or European partner can source a grant from their richer providers and, if they're interested in Africa, they get the UCT collaborator to get access to African subjects and African data and African infrastructure. That's a very common pattern."

This presents a crucial opportunity for Southern perspectives to be incorporated into Northern-dominant research outputs and discourses. But as the "developing world" partner in these research collaborations, it remains important that UCT scholars use such opportunities to not only push the boundaries of research, but to push the dissemination of that research into the hands of communities that can benefit from it locally.

The SAPSE advantage

Like all South African universities, UCT enjoys the benefits of the government's support for higher education. Many other African universities suffered through the World Bank and IMF "structural adjustment programmes" in the 1980s and 1990s, while South African universities were buoyed up by the apartheid government (so as to retain an independent intellectual resource base during the years of international isolation) and have continued to be supported by the post-apartheid government (so as to broaden the

access that previously disadvantaged citizens have to education). Thus higher education remains relatively robust.

Two reasons why South African universities can continue to grow and innovate is because of the block grant funding system and the SAPSE subsidy system. Essentially, block grant funding comprises a percentage of the total funds given to a university by the government with which it can do as it pleases. That is, while other funds are earmarked for particular programmes or line items, block grant funds can be used in line with the university's particular strategies. This gives a crucial degree of autonomy to these universities, allowing them to express the desires of their staff and students, not just those of the Minister of Higher Education and Training.

The SAPSE subsidy, which is paid by the government to universities as a reward for research produced and as an incentive for the production of further research, forms part of the block grant, thus each university has its own approach for dealing with the funds that come in through the subsidy. For instance, some universities pay a portion of the subsidy directly into the relevant scholars' personal research budget, rewarding him/her for producing an output listed on the SAPSE list, and incentivising him/her to produce more. At other universities, including UCT, a portion of the funds goes to a faculty-level research fund, which acts as a pooled source of resources that faculty scholars can compete for. It does not go directly to the scholar who produced the output, but to his/her faculty research fund. This creates a virtuous research cycle encouraging further research with every output produced.

Numerous scholars at UCT credit the subsidy for enhancing the conditions for pursuing research, not only through the provision of actual funds, but through the fact that scholars themselves have an impact on how much is given by the government to the university.

Moreover, because the SAPSE list of approved publications includes a number of South African-based journals, it has helped solidify a strong and relatively independent publishing core in the country.[130] This forms part of the research infrastructure that SCAP has identified as being so important in productive research environments.

But while the SAPSE system has been crucial for both the production of research and the support of a strong local research infrastructure, its potential to enhance scholarly communication in the open access era has yet to be realised.[131] If the subsidies were tied to open dissemination practices, or if they were used to support open approaches, South

---

[130] One manager explained the situation, but from a slightly cynical perspective: "UCT makes its money out of publications in a SAPSE-approved journal. And the amount of money that they earn is exactly the same, whether it's *Studies in Economics and Econometrics*, which is a little journal published in Stellenbosch, or the *American Economic Review*. It is exactly the same amount of cash. So, from the UCT financial perspective, it is better to publish lots and lots of articles in easy-to-get-into South African journals, which happen to be SAPSE-approved."

[131] This is generally true, but one key initiative that could act as a model for further types of South African research output is its participation in the Brazil-derived Scientific Electronic Library Online. "The Scientific Electronic Library Online (SciELO) SA is South Africa's premier open access (free to access and free to publish) searchable full-text journal database in service of the South African research community. The database covers a selected collection of peer-reviewed South African scholarly journals and forms an integral part of the SciELO Brazil project. SciELO SA is managed by the Academy of Science of South Africa (ASSAF), funded by the South African Department of Science and Technology and endorsed by the South African Department of Higher Education and Training (DHET)." See SciELO SA, available at: www.scielo.org.za/

Africa could become a leader in fostering a more accessible, equitable and developmental type of communication. We will discuss this in further detail in Chapter 9.

Innovation-focused intermediaries

Lastly, one advantage that UCT enjoys over many other Southern African universities is the presence of numerous innovation-focused intermediaries that not only teach and/or conduct research on campus, but search for ways to improve both activities across the institution. These are not traditional departments, but (often soft-funded) "mode 2" units or projects that enhance the research, teaching and dissemination capability of the university.

These innovation-focused intermediaries – which include the Centre for Higher Education and Development (CHED), the Centre for Educational Technology (CET), OpenUCT and even our own SCAP project – leverage the strengths of the institution while also attending to gaps between traditional disciplines. These are often creative spaces where unorthodox questions can be asked, where new ideas can be experimented with, where interdisciplinary collaboration can take place and where academics and non-academics can meet to pursue shared goals. All of these efforts feed into the lifeblood of the university, strengthening the intellectual ethos and contributing to a vibrant research culture.

These intermediaries are able to take on certain tasks that may not yet be standard for the institution (such as running an open educational resource platform), either because it does not have the skills or capacity to do so or because it is still deciding on their viability. Such intermediaries are becoming increasingly important in the new open access scholarly communication paradigm, providing translation, curation and profiling services.

For instance, as our implementation initiative with SALDRU revealed, the unit did not have the capacity to develop certain types of "accessible" outputs concerning its socially relevant research findings, thus other intermediaries at UCT who had experience with producing easy-to-read policy briefs – members of the Children's Institute – were called in to help produce a briefing paper on teenage pregnancy that could be circulated to stakeholders at the governmental and community levels.

Until the production of such "translated" work becomes standard for academics, they will need intermediaries to help them broaden the reach of their research. At the moment, these intermediaries operate in an ad hoc manner concerning scholarly communication at UCT, but if they were incorporated into an institution-wide strategic plan, they would be able to have a more profound impact on getting UCT's research into the hands of those who most want or need it, and simultaneously improve the institution's brand and profile.

Conclusion

While UCT enjoys many advantages compared to other African universities, its ascendant position cannot be taken for granted. One of the dangers it faces concerns the legacy of its historical achievements: that is, the institution's past success may hinder managers and scholars from embracing new innovations in scholarly communication because they believe that they can continue to succeed based on the old standards that they have previously employed. Success can ironically impede development and innovation in a time of rapid change.

Another danger that UCT faces is thinking that its elite position within the country is secure (as many people at UCT recognise and acknowledge). Far from it: the pronounced differences between the quality of some universities like UCT vs other universities in the country is a major cause of alarm for some scholars and politicians who believe that UCT is being unfairly advantaged, or at least unreformed racially.[132] Such inequalities, if they become politicised in a particular way at a particular time, could lead to massive structural and policy changes at the top, negatively impacting UCT's plans.

As one manager shared, UCT's prestige is derived, in part, from the fact it has the luxury of picking and choosing the best students because other universities pick up UCT's slack, a situation that may not last forever:

> *When the University of the Western Cape was making it possible for people to come into a university who would never have had a chance of getting into one, UCT was getting its A-rated research status. We were looking inwards; we were patting ourselves on the back and we were kind of working with the best students and so on. So I really do think that UCT is often blind to the extent to which other universities are making it possible for it to continue to do what it's doing by allowing it to take just the cream of the crop of the students, while the others deal with the students who are really struggling …. So we should be very mindful of the fact that they are playing a role that supports us to do what we do. And that's changing, because they're not going to do that forever. They don't want that and I think there's a strong pressure to even the load. And then, against that is strong pressure to maintain*

[132] For instance, see this (factually incorrect) statement made by the ANC Western Cape Chairman and Deputy Minister of International Relations and Cooperation, Marius Fransman (12 April 2012) UCT backsliding on racial transformation, *Politicsweb*, available at: www.politicsweb.co.za/politicsweb/view/politicsweb/en/page71654?oid=292427&sn=Detail&pid=71654; for UCT's response to this, and a fuller picture of the debate that ensued, see Rebecca Davis (20 April 2012) UCT students get stuck into race debate, *DailyMaverick*, available at: www.dailymaverick.co.za/article/2012-04-20-uct-students-get-stuck-into-race-debate/. One of the key points to take away from this discussion is that many people still ask "Is UCT racist?" – a question that compromises UCT's ability to broadcast its own image of itself and enjoy unquestioned credibility. When such questions surround an institution, it can represent an opening for politicians to "meddle" in the otherwise "autonomous" institution, as the Fransman episode highlights. But it also opens up the university to scrutiny from all quarters: even the South African Communist Party (which forms part of the ANC-led ruling Tripartite Alliance) has suggested that UCT's VC Max Price is unduly under the influence of the Democratic Alliance (DA) – which governs the Western Cape and acts as the official opposition party to the ANC at the national level – because he is acquainted with some of its leaders. See Rebecca Davis (18 October 2013) The battle at UCT: Race-based admissions policy issue flares up again, *DailyMaverick*, available at: www.dailymaverick.co.za/article/2013-10-18-the-battle-at-uct-race-based-admissions-policy-issue-flares-up-again/

differentiation so that some universities can continue to be very high-flying research- active universities. It's a debate that will go on and on.

It is therefore important that UCT demonstrates that it is contributing to locally relevant and meaningful development outcomes, not just achieving great prestige through publication and rankings. The university exists in a national political context where accountability, equality and local responsiveness matter. This is where open scholarly communication strategies can serve UCT well, taking research that would otherwise circulate only in an "ivory tower" setting and reaching the many civil society, industrial and governmental constituencies that could leverage that research for developmental purposes.

In sum, this discussion of the challenges, contradictions and opportunities characterising the UCT Comm scholarly communication ecosystem reveals a dynamic and productive research environment that is trying to balance the desire for international recognition and local development. This process is not without its difficulties, as we have seen. The biggest challenges revolve around UCT's identity; its collegial culture; its competing local and international foci; its relationship between teaching, research and practice; and its relative marginality due to being located in Africa. Despite these challenges and contradictions, there are real opportunities for enhancing scholarly communication through the university's collegial culture, the national publication subsidy system, the university's gateway status and its innovation-focused intermediaries.

Chapter 8. Key findings

In seeking to answer our two research questions concerning the state of scholarly communication at four Southern African universities, and how information and communications technology (ICT) and open access (OA) publishing models can improve that state with appropriate institutional support, SCAP has amassed a substantial amount of data on the University of Cape Town's (UCT) research and communication practices, its policy landscape and its level of e-readiness. We have analysed that data in the previous chapters, but here we condense that analysis down into a single chapter where we present our key findings.

Before we launch into our research areas, it is worth foregrounding a finding that helps set the stage for understanding the peculiar place that UCT occupies in African higher education. It concerns the fact that, as an institution with a long colonial pedigree and history of predominantly white enrolment and staffing, UCT has deep Anglo-European roots and remains highly responsive to trends shaping Northern institutions. In the post-apartheid era, however, this "Eurocentric" heritage has required re-examination as it tries to contribute to the country's racial and social transformation efforts. In response, the university has stated that it has set out to become an "Afropolitan" institution that better represents the demographics, values and perspectives of the continent. This has been a challenging process and remains incomplete.

For instance, while the university would like to collaborate with more African partners, it finds it difficult to maintain those partnerships for financial, logistical or linguistic reasons. Thus, in many cases, scholars find it easier to connect with other similarly resourced institutions in the North where money, logistics and language act more to enable their relationship than constrain it. This is important because it inadvertently reduces the fulfilment of the university's Afropolitan ideal. There is no easy fix to this challenge – as the university has proactively tried to reach out and connect with other African universities – but the pressure for UCT academics to constantly produce high-impact research outputs increases the likelihood that they will choose to collaborate with Northern scholars over those in Africa, simply because it is easier.

➔ *Finding 1. For a variety of financial, logistical and linguistic reasons, it is easier for UCT scholars to work with colleagues in Northern institutions than African ones, a fact that inadvertently impedes UCT's desire to define itself as an "Afropolitan" university.*

With this overarching challenge in mind, we highlight the key findings from our research into UCT's scholarly communication ecosystem, as they pertain to UCT's research and communication practices, its policies and its infrastructure and capacity. These comprise the factors influencing the visibility of UCT scholarship and offer points of contact for interventions that seek to improve them.

Research and communication practices

To understand the state of scholarly communication at UCT, we focused on the research and communication practices of the Faculty of Commerce (Comm), the broader entity in which SCAP's pilot site, the Southern African Labour and Development Research Unit (SALDRU), is located. However, the various research instruments we used to obtain information crossed institutional, faculty and unit levels, shedding light on each in turn. Thus some of our insights are applicable to the whole institution while others can only speak to the faculty or unit level. We will be as explicit as possible about the scope of each finding so that readers can see the complexity of this nested ecosystem.

Values

To get a full picture of scholarly communication practices at UCT, we started by trying to grasp academics' motivations for conducting research and publishing their findings in the first place. Based on numerous interviews, surveys, conversations and observations with members of the UCT Comm Faculty (see Chapter 2), we found that Comm scholars were motivated by both extrinsic (job descriptions) and intrinsic factors (personal desire), but that the desire to conform to peer expectations is currently the most important factor.

➔ *Finding 2. The foremost reason why UCT Comm scholars conduct research is to conform to and reinforce peer expectations to do so. Such work helps confirm their academic identity and credentials.*

Amongst the four Southern African universities SCAP profiled, UCT is unique in this regard. The other institutions do not yet have strong research cultures and their colleagues do not act as sources of positive peer pressure to produce more research. Those other scholars responded more to other inducements – such as (extrinsic) mandates or (intrinsic) personal desires – to spur research activity. However, the UCT "collegial" culture, which is highly competitive and comparative, provides a much more powerful and sustainable research environment than those maintained by mandates or personal feelings. It is inexpensive and efficient as well, with peers regulating each other's behaviour rather than the central administration or one's fluctuating

temperament. But it is also the outcome of decades of development, the product of a historically old, well-resourced academic environment.

We believe the above finding pertains to the entire institution, but our research into the UCT Comm Faculty showed that scholars are motivated by a variety of occupational factors. That is, Comm staff belong to a field that has academic, professional and industrial applicability, with different scholars leaning toward different elements of this broad field. This makes for a diverse faculty profile of researchers, teachers and practitioners, but it also creates a challenge in a context where research is emerging as the primary currency in discussions of university prestige and rankings. For Economics staff members, this corresponds with the highly academic values of the discipline. But for Accounting staff members, who are often more interested in training the next generation of chartered accountants, or bringing their "real-world" experiences to bear in their engagements with students, teaching and practice are often more important to their sense of occupational identity than research.

➔ *Finding 3. UCT Comm's diverse, multi-faceted mission requires a scholarly communication strategy that attends not only to the dissemination of research outputs, but the sharing of educational and training resources, and practical insights gained from industrial engagement.*

Research production

Our research found a busy faculty, with members typically involved in multiple research projects at a time. This work is supported by a wide variety of funding opportunities emanating from the government, such as the National Research Foundation (NRF), UCT, foreign universities, local and foreign industry players, local and foreign funding agencies and more. Unlike other Southern African scholars we interviewed, who struggled to tap such a diversity of funding options, UCT Comm scholars were able to engage in high-level, empirical and data-intensive research through the funding they won.

➔ *Finding 4. UCT Comm scholars enjoy access to a wide variety of research funding options.*

Outputs

The outputs that typically emerge from their research are journal articles, book chapters, conference papers and books. They also produce reports during consultancy research but typically prefer to produce outputs that grant them the maximum value according to their rewards and incentive structure, which is based on scholar-to-scholar output genres. With regard to "alternative" outputs – such as briefing papers, policy briefs, working papers, reports and other genres that are more accessible for non-academic audiences – they show less interest, even if they are produced as by-products of their work. Because scholar-to-community and scholar-to-government communications are not recognised as "serious" academic outputs, UCT Comm scholars have little interest in them.

➔ *Finding 5. UCT Comm scholars show little interest in producing "alternative" outputs that would have greater appeal for non-academic audiences.*

This is slightly nuanced in SALDRU, which has a well-established working paper series. But these papers – while openly available – are written for other scholars. The members' remain primarily interested in producing scholar-to-scholar outputs, similar to the rest of the faculty, but members say that they are starting to see the value of extending the reach and focus of their materials.

Communication

This relative disinterest in alternative outputs is coupled with the fact that most UCT Comm staff members are only partially aware of or engaged with the changing communication opportunities that new ICTs offer for disseminating their work. For the most part, they confine their communication activities to traditional modes, such as submitting their articles for publication in journals (which then handle the task of dissemination). While the open access movement and availability of free online tools have radically expanded the opportunities for individual academics to profile their work on the internet and seek out collaborative partners, many UCT Comm scholars have yet to take full advantage of them.

➔ *Finding 6: UCT Comm scholars rarely utilise Web 2.0 technologies to open up greater collaborative research opportunities for themselves, restricting their use of social media to more private or recreational functions.*

Many lack the knowledge or training to leverage these tools for academic purposes, dismissing them as "frivolous" and unsuitable for "rigorous" academic work. They also point out that dissemination through such channels does not bring them a direct reward from the university, the Department of Higher Education and Training (DHET) or the NRF (all of which prioritise traditional dissemination channels). This means that UCT Comm scholars devote the vast amount of their research efforts towards scholar-to-scholar communication rather than, say, scholar-to-community or scholar-to-government communication.

➔ *Finding 7. UCT Comm academics focus most of their research time producing outputs directed at other scholars rather than civil society, industry or the government.*

Though they are, at times, hired by civil society groups, industry players, or government ministries to produce research for them, they rarely make sure that their other research outputs are accessible to those same groups. Their focus on scholar-to-scholar outputs may help them achieve a high "impact factor", but it also decreases the actual social and developmental impact of their work because it often fails to reach the people who could leverage it for their own purposes.

Networks and collaboration

This comfort with the traditional mode of scholarly communication coincides with scholars' preference to operate within their disciplinary boundaries. According to numerous UCT scholars and managers, scholars' connectivity with each other is deep, rich and vertical as opposed to broad and horizontal. They described the landscape as one of "silos" in which academics share and collaborate with others, but only those in the same field. The interdisciplinary ideal that so many Northern and other South African universities claim has yet to typify research engagements at UCT.

➔ *Finding 9. Scholarly networking and collaboration is prevalent between UCT academics, but mostly only between those of similar disciplinary fields.*

UCT Comm scholars are also highly networked with international colleagues, often acting as "Southern" or "developing world" or "African" experts in larger transnational research projects. Indeed, as an institution, UCT enjoys a "gateway" status for many international universities and agencies that seek to have engagement with scholars in Africa. This is due, in part, to the fact that UCT resembles typical research universities in the global North, providing a sense of familiarity and reassurance that many funders desire when collaborating with partners outside of their own region. Thus, UCT's "difference" is important to potential foreign collaborators, just as its "sameness" is.

➔ *Finding 10: UCT enjoys a "gateway" status for many international universities, funders and scholars that seek to conduct research in Africa or collaborate with African (or Southern, or developing world) scholars.*

Research culture

These collaborative opportunities reveal how robust, productive and mature UCT's research culture is. That culture is based on the qualities mentioned above: the high level of networking and collaboration, the high sense of peer expectation regarding research production, the high participation rates in journal editorial boards (helping to shape their fields), and the high level of funding opportunities made available to them both locally and internationally.

Policy

The UCT administration is currently engaged in and facilitating an institution-wide discussion about scholarly communication strategy, developing policy strategies that will guide the university's curation, profiling and dissemination efforts in the future. However, as robust and lengthy as these discussions have been, they remain incomplete and require a good deal of further engagements before being ratified as policy. This has had two effects. First, since UCT has only embarked on these discussions relatively recently (in comparison with other Southern African universities), its approach to scholarly communication remains well behind developments taking place elsewhere. Second, because the university lacks a coherent, integrated dissemination policy, it has

inadvertently reduced the likelihood that current research outputs will reach local audiences that can leverage them for development, because there is no open access or translation imperative directing these efforts yet.

Rewards and incentives

It is at the faculty level where reward and incentive structures are currently located. These policies guide the production and dissemination of research, though most of them were developed prior to the internet revolution. They attempt to operationalise the values of the university and the faculty by encouraging activities that are believed to promote the institutional mission. At the moment, the incentive system rewards of high-prestige scholar-to-scholar outputs in specified journals and books. This is reinforced by the national SAPSE system run by the DHET, which subsidises research by giving funds to universities for the outputs their scholars produce in officially recognised publications.

➔ *Finding 11. The institutional and national reward and incentive structure radically diminishes the incentive for UCT scholars to produce "alternative" outputs, such as briefing papers, policy documents and reports.*

This situation contributes to a tension between the university's desire for international recognition (prestige) and its desire for local social responsiveness (relevance). The quest for prestige saturates the language emanating from the management, as it deploys terms such as "world class", "excellence" and "top rank" to signal its ambitions. This leads it to focus on work that leads to "prestige", which is work that is recognised by Northern academic journals, scholars and ranking systems. But the interests of international academics or rankings do not necessarily coincide with the demands of local reality, meaning that if the university pursues prestige too much, it will neglect its local constituents and risk isolating itself as an ivory tower, not the socially responsive institution that it would also like to be.

➔ *Finding 12. UCT's quest for prestige runs the risk of reducing its efforts toward social relevance.*

But with every journal article a UCT scholar produces that remains trapped behind a publisher paywall, the university misses an opportunity to enhance both its prestige and its relevance. And with every research or dissemination choice that caters to the tastes of "international" (Northern) academic consumers, rather than also assuring that local stakeholders can benefit from it, the university achieves prestige at the expense of its mandate to impact local communities.

Institutional culture

Ironically, the collegial institutional culture that empowers scholars and promotes high research production levels also makes it difficult to move away from this prestige-oriented approach to dissemination. Because power, connections and conversations tend to be constituted in discrete "silos", it is difficult for the university to quickly adapt to new

imperatives, such as the need for open scholarly communication practices. The central administration does not have the power or inclination to simply enforce an institution-wide policy without first obtaining the buy-in from all of the different faculties and departments. This process can take a long time just to get different faculty structures to consider doing things differently.

➔ *Finding 13. UCT's decentralised structure empowers scholars and faculties to make their own decisions regarding research, making it difficult to build consensus across the institution even in urgent matters such as scholarly communication.*

This structural conservatism resembles the checks and balances system found in democratic societies, and is typically a valuable asset to an institution seeking stability and consistency. But when faced with the prospects of being left behind in the world of scholarly dissemination, it can represent a frustrating challenge that can inadvertently threaten the institution's high standing.

Open access

As UCT engages with this lengthy process of defining its future dissemination policies, at the moment it is worth stating that there is no open access policy guiding scholarly communication. There is no incentive for publishing outputs with open access publishers or changing an output's licence so that it can be freely accessible. There is also no policy on the payment of article processing charges that would encourage more OA publication. However, this is not the only issue hindering the promotion of OA dissemination. In the UCT Comm faculty, many scholars remain unconvinced of the merits of OA outputs. They do not buy into the arguments for OA against the traditional mode of relatively "closed" communication on which they have succeeded in building their careers.

➔ *Finding 14. Many UCT Comm scholars remain unconvinced by the arguments for open access dissemination, preferring to stay with the traditional mode of communication that has benefited them in the past.*

Thus many UCT Comm scholars are cautious about embracing a new model that has yet to be proven superior in their eyes.

Infrastructure and capacity

These findings have stressed the importance of motivational systems and policies, because, for the most part, UCT already possesses the resources necessary to optimise scholarly communication. It has archival platforms, servers, scanners, broadband and various research management systems; the challenge to optimising scholarly communication at the university has therefore not been primarily technological.

➔ *Finding 15. UCT already possesses most of the technologies necessary for promoting open scholarly communication that can reach a broad audience.*

e-Infrastructure

Despite the university's bounty of technological resources, it is one of only a few universities in all of South Africa that does not yet have an institutional repository. This stands in contrast to the university's vanguard role in so many other educational endeavours. At the moment, different units, departments, centres and faculties possess websites or servers for profiling their content, but they do not abide by the same technical protocols (meaning that they are not interoperable) and they often have no relationship to each other. They are ad hoc efforts, typical in a decentralised institutional context. Moreover, they tend to treat the repositories as reservoirs for content, catching and curating every type of digital file, rather than being defined by a cohesive, strategic purpose.

➔ *Finding 16. e-Infrastructure for research is currently conflated with e-infrastructure for teaching and learning at UCT, which compromises the efficiency, utility and interoperability of these different technologies.*

Research infrastructure

This access to powerful e-infrastructure is backed by robust governmental support in the form of the NRF, the block grant system which allows universities great discretion over their expenditure, and the SAPSE subsidy which rewards and encourages public scholarship with public money. This enhances the opportunities that scholars have for sourcing funding both at the university and at the national governmental level.

➔ *Finding 17. The South African government funding strategy for higher education – especially expressed through block grant funding and the SAPSE subsidy initiative – provides a stable platform on which scholars can pursue research.*

At UCT, that platform also benefits from the diversity of research groupings – in faculties, departments, units, centres and schools – that are often soft-funded, but provide a crucial extension of research capacity for the university. These groups can be called "innovation-focused intermediaries", because they are often able to ask questions that go beyond traditional disciplinary boundaries and engage with broader audiences than other academics owing to their civil society, industry and governmental connections. Moreover, like the Centre for Educational Technology and even this SCAP programme, they can act to connect university academics through research translation, curation and profiling.

➔ *Finding 18. The strength and durability of UCT's research infrastructure is enhanced by the presence of innovation-focused intermediaries.*

Capacity

However, despite the generally solid levels of capacity at the university, there is currently little consolidated expertise on new forms of scholarly communication. It exists in pockets, often in the form of "institutional champions" who are spread across the university and do not necessarily hold any formal title or institutional mandate in this regard. One of the reasons for this is that it is difficult to identify where this activity should be located, especially given the decentralised nature of activity in the institution.

➔ *Finding 19. Expertise on new forms of scholarly communication exists in pockets dispersed across the university, creating challenges in developing a coherent, integrated strategy for the institution.*

A crucial implication is that, because the university does not yet have a cohesive institutional research management system able to generate outputs data and associated bibliographic detail, it would be difficult for UCT to take an Altmetrics-based approach to research evaluation (given that this data is the principal component on which new Altmetrics tools currently operate). This limits the ability of the university management and scholars to account for their research activities in a collective fashion and to demonstrate their value to the public.

➔ *Finding 20. The university's current investment in traditional, Impact Factor-driven approaches to research evaluation – combined with the challenges around surfacing institutional data on both traditional and new output genres – hinders the adoption of new methodologies for assessing "impact".*

Conclusion

UCT is a dynamic, research-led institution that plays an important role in the national research and education effort. It participates in a broader national research infrastructure that is both diverse and relatively well-resourced. But in South Africa's differentiated higher education system, UCT has set for itself ambitious goals such as becoming a "world class" research university that enjoys high international esteem, an "Afropolitan" institution that brings together scholars and students from across the continent while acting as a gateway to Africa for overseas collaborators, and a socially responsive university that applies its knowledge to the pressing local issues of the day.

While UCT has been largely successful in creating the conditions by which its scholars produce a high quantity of high-quality research outputs on a consistent basis, it has been less successful in responding to the opportunities afforded by the changing scholarly communication landscape. Even as open access dissemination strategies offer the chance for UCT scholarship to reach multiple audiences that might leverage it for innovation or development, the university has thus far preferred to promote a

conventional mode of scholar-to-scholar communication that largely traps scholars' ideas behind publisher paywalls. However, with an open access approach, UCT could better achieve its twin aims of international recognition (prestige) and social responsiveness (relevance), as its research outputs would not only continue to go through the traditional peer-review process that assures excellence, but would ensure the dissemination of that work beyond the academy where it can be engaged by multiple interested audiences. This would enhance the university's profile, reach, brand and visibility.

As the top-ranked university in Africa, UCT also carries an important symbolic burden, acting as a model and a guide for many other continental universities. But at the moment, many of those universities have taken a more engaged, open and visibility-enhancing approach to disseminating their research outputs than UCT. This understanding appears to be gaining traction at the higher levels of the administration, as UCT's leadership realises that too much has changed for it to operate as it traditionally has. This recognition is best expressed by the SALDRU Director and Chair of Poverty and Inequality Research at UCT, Murray Leibbrandt, who stated:

> *One of our strengths as a research university is that we focus our energies on doing our work as well as we can within our narrow spheres of excellence. However, this has two negative consequences. First, we seldom step into the policy sphere by clearly communicating the implications of our work for policy. Second, we don't take stock of and communicate our collective contribution. To do better, the research community needs a supportive communications infrastructure. The university has committed resources to putting this infrastructure in place to facilitate communication and policy engagement.*[133]

With this insight in mind, in the following chapter we offer recommendations for how UCT can enhance its scholarly communication activities in a way that serves its multiple objectives without compromising its strengths.

[133] Quoted in Helen Swingler (26 August 2013) Leibbrandt brings new life to PII, *UCT Monday Paper*, available at: www.uct.ac.za/mondaypaper/?id=9625

Chapter 9. Recommendations

To optimise scholarly communication at the University of Cape Town (UCT), the SCAP team believes that there are four stakeholders that can play a dynamic role in improving UCT's dissemination activity: the national government, the UCT administration, UCT scholars and research funding agencies. Each of these groups contributes to research and communication practices at the institution, thereby impacting the potential visibility of UCT scholars' research outputs. In this chapter, we provide recommendations tailored to each of these stakeholders, with an eye towards enhancing research production, open dissemination and regional collaborative opportunities.

To the national government

Enhance the national research infrastructure

Require all NRF-funded research to be made open access.

Incentivise open access dissemination by increasing the SAPSE dividend paid for open access outputs above that of the dividend paid for non-open access outputs.

Provide funds for research dissemination, such as an article processing charge (APC) fund.

To the UCT administration

Incentivise open dissemination

Develop an open access policy which mandates that all publicly funded research be made open access, either through publication in open access journals, or through the payment of APCs in traditional journals. Increase the recognition of outputs that are disseminated in an open, rather than closed, fashion.

Apportion a percentage of all SAPSE subsidy allotments for dissemination activity.

Establish a policy for the support for and payment of APCs.

Reward innovation in scholarly communication practices through updated promotion criteria.

Explore the utility of Altmetrics – or a related complementary metrics system – by providing scholars with data from institutionally curated and profiled outputs.

Provide support services for scholarly communication

Establish or identify support service providers who can translate scholars' research for government and community-based audiences (i.e. condensing journal articles into accessible policy briefs).

Develop a communication officers/content managers network within UCT so that disparate dissemination activity can be pursued in a more cohesive and strategic manner.

Train and incentivise scholars to use Web 2.0 platforms so that they can share in the responsibility of making their own research more visible.

Encourage scholars to share their research insights (and bibliographic references for them) on Wikipedia so that UCT research can reach a broader audience.

Leverage regional expertise

Collaborate in the construction of short-term regional exchanges for administrators and librarians. This would allow them to be immersed in other contexts in which they can learn new skills and approaches through interaction with senior hosting staff members. They would be responsible for producing an output from their experience and sharing it with staff members at home. This would allow members of the entire staff structure to contribute to the university's "Afropolitanisation" effort.

Invest in regional journal production opportunities.

Incentivise regional research collaboration through enhanced funding and recognition for SADC-based activities.

To UCT scholars

Raise personal visibility

Share responsibility with the administration for research visibility. Communicate research findings not only to the communities that the research may concern, but also communicate it to the audiences that could best leverage it for developmental purposes.

To research funding agencies

Determine the feasibility of developing a regional megajournal. Prepare costings for launching one new open access megajournal (in the style of *PLOS ONE*). The study should include consideration of: how to provide publishing services (hosting, editorial services, peer review management); researcher interest and willingness to take on the new challenges involved; readiness of research funders to support the venture in terms of cash and of support for the principle and the practicalities involved; how this journal can be made viable and how it should be sustained and supported.

Fund research into a metalevel analysis of all "open" activities (open access, science, data, educational resources, etc.), both in the region and within the agency's funding umbrella, so that points of intersection can be explored in future projects.

References

Abrahams L, Burke M & Mouton J (2010) Research productivity-visibility-accessibility and scholarly communication in Southern African universities. *The African Journal of Information and Communication* (10): 20–36

Abrahams L, Burke M, Gray E & Rens A (2008) *Opening access to knowledge in Southern African universities*. Johannesburg: SARUA. Available at: www.sarua.org/files/publications/OpeningAccess/Opening_Access_Knowledge_2008.pdf

Adams J, King C & Hook D (2010) *Global research report: Africa*. Leeds: Thomson Reuters. Available at: http://researchanalytics.thomsonreuters.com/m/pdfs/globalresearchreport-africa.pdf

Ajayi JFA, Goma LKH & Johnson GA (1996) *The African experience with higher education*. Accra: African Association of Universities

Archer L (2008) Younger academics' constructions of "authenticity", "success" and professional identity. *Studies in Higher Education* 33(4): 385–403

ASSAF (Academy of Science of South Africa) (2006) *Report on a strategic approach to research publishing in South Africa*. Pretoria: ASSAF. Available at: www.assaf.co.za/wp-content/uploads/reports/evidence_based/assaf_strategic_research_publishing.pdf

ASTII (African Science, Technology and Innovation Indicators Initiative) (2010) *African innovation outlook 2010: Executive summary*. Pretoria: ASTII. Available at: www.nepad.org/system/files/NEPAD_AIO_Executive_Summary_web.pdf

Bailey T, Cloete N & Pillay P (2012) *Case study: South Africa and Nelson Mandela Metropolitan University*. Cape Town: HERANA. Available at: http://chet.org.za/files/uploads/reports/Case%20Study%20-%20SA%20and%20Nelson%20Mandela%20Metropolitan%20University.pdf

Barclay A (2002) The political economy of brain drain at institutions of higher learning in conflict countries: Case of the University of Liberia. *African Studies Association* 30(1): 42–46

Barry B, Chukwuma V, Petitdidier N, Cottrell L & Barton C (2008) Digital divide in sub-Saharan African universities: Recommendations and monitoring. Paper Presented at the IST-Africa Conference, Windhoek, Namibia, 7–9 May 2008. Available at: www.slac.stanford.edu/cgi-wrap/getdoc/slac-pub-13853.pdf

Benkler Y (2006) *The wealth of networks: How social production transforms markets and freedom*. New Haven: Yale University Press

Bentley K, Habib A & Morrow S (2006) *Academic freedom, institutional autonomy and the corporatised university in contemporary South Africa*. HEIAAF Series No. 3. Pretoria: Council on Higher Education. Available at: http://www.che.ac.za/sites/default/files/publications/CHE_HEIAAF_No.3_Dec2006.pdf

Bergquist WH & Pawlak K (2008) *Engaging the six cultures of the academy: Revised and expanded edition of* The Four Cultures of the Academy (2nd edn.) San Francisco: Jossey-Bass

Björk B-C (2007) A model of scientific communication as a global distributed information system. *Information Research* 12(2): paper 307. Available at: http://informationr.net/ir/12-2/paper307.html

Bloom D, Canning D & Chan K (2005) *Higher education and economic development in Africa*. Washington, DC: The World Bank. Available at: http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079956815/HigherEd_Econ_Growth_Africa.pdf

BOAI (Budapest Open Access Initiative) (2002) The Budapest Open Access Initiative declaration. Available at: www.budapestopenaccessinitiative.org/read

Brown C (2011) *Are southern academics virtually connected? A review of the adoption of Web 2.0 tools for research collaboration by development researchers in the South*. New Delhi: GDNet. Available at: http://depot.gdnet.org/cms/files/GDNet_study_of_adoption_of_web_2_tools_v2.pdf

Chaiklin S & Lave J (eds.) (1993) *Understanding practice: Perspectives on activity and context*. New York: Cambridge University Press

Chan L, Kirsop B & Arunachalam S (2011) Towards open and equitable access to research and knowledge for development. *PLOS Medicine* 8(3): e1001016

Chien C-L & Chiteng F (2011) New patterns in student mobility in the Southern African Development Community. In P Kotecha (ed.) *Building regional higher education mobility through academic mobility*. SARUA: Johannesburg, pp. 6–22. Available at: www.sarua.org/files/publications/SARUA%20leadership%20Dialogue%20Series/Leadership%20Dialogue%20series%20Vol%203%20No%201.pdf

CIBER (Centre for Information Behaviour and the Evaluation of *Research*) (2010) *Social media and research workflow*. London: Emerald. Available at: http://ciber-research.eu/download/20101111-social-media-report.pdf

Clobridge A (2012) *Berlin 10 open access conference recap*. Available at: http://newsbreaks.infotoday.com/NewsBreaks/Berlin--Open-Access-Conference-Recap-86197.asp

Cloete N, Bailey T & Maassen P (2011) *Universities and economic development in Africa: Pact, academic core and coordination (synthesis report)*. Cape Town: HERANA. Available at: http://chet.org.za/download/file/fid/70

COAR (Confederation of Open Access Repositories) (2012) *Open Access Africa & Berlin 10 meeting reflections, part 3 (of 3): OA and implications for universities*. Available at: www.coar-repositories.org/news/nov2012southafricaoameetings-part3/

Cole M & Engeström Y (1993) A cultural historical approach to distributed cognition. In G Salamon (ed.) *Distributed cognition: Psychological and educational considerations*. Cambridge: Cambridge University Press

Cooper D (2009) University-civil society (U-CS) research relationships: The importance of a "fourth helix" alongside the "triple helix" of university-industry-government (U-I-G) relations. *South African Review of Sociology* 40(2): 153–180

Cooper D (2011) *The University in development: Case studies of use-oriented research*. Cape Town: HSRC Press. Available at: www.hsrcpress.ac.za/product.php?productid=2286

Cronin B (2003) Scholarly communication and epistemic cultures. *New Review of Academic Librarianship* 9(1): 1–24

Crush J & Pendleton W (2012) The brain drain potential of students in the African health and non-health sectors. *International Journal of Population Research*. Article ID 274305

Cullyer H & Walters DJ (2008) *Priorities for the Scholarly Communications Program. 2008 annual report to the Mellon Foundation*. Available at: www.mellon.org/news_publications/annual-reports-essays/presidents-essays/priorities-for-the-scholarly-communications-program

Czerniewicz L (2013) Power and politics in a changing scholarly communication landscape. Paper presented at the 34th Conference of the International Association of Scientific and Technological University Libraries (IATUL), Cape Town, April 2013. Available at: http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1982&context=iatul

Czerniewicz L & Wiens K (2013) The online visibility of South African knowledge: Searching for poverty alleviation. *African Journal of Information and Communication* 13: 1–12. Available at: www.wits.ac.za/files/j9dqq_991720001373364320.pdf

Daniels H (2008) *Vygotsky and research*. London: Routledge

DHET (Department of Higher Education and Training) (2012a) *Green paper for post-school education and training*. Pretoria: DHET. Available at: www.dhet.gov.za/LinkClick.aspx?file ticket=yhGLBBQZBzM%3D&tabid=36

DHET (2012b) *Chapter 3: Budget review of public universities in South Africa*. Financial and Fiscal Commission, Budget Proposals, 2013/14. Available at: http://goo.gl/1AQZe

DST (Department of Science and Technology) (2008) *Department of Science and Technology ten-year innovation plan (2008–2018)*. Pretoria: DST. Available at: www.info.gov.za/view/DownloadFileAction?id=94066

DST (2013) *National survey of research and experimental development (2009–2010 fiscal year)*. Johannesburg: HSRC. Available at: www.dst.gov. za/index.php/resource-center/rad-reports/602-2009-10-r-d-survey-high-level-key-results

Echezona RI & Ugwuanyi CF (2010) African university libraries and internet connectivity: Challenges and the way forward. *Library Philosophy and Practice*. Paper 421. Available at: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1446&context=libphilprac

Engeström Y (1987) *Learning by expanding: An activity theoretical approach to developmental research*. Helsinki: Orienta-Konsultit Oy

Engeström Y (1996) Developmental studies of work as a test-bench of activity theory: The case of primary care medical practice. In J Lave & S Chaiklin (eds.) *Understanding practice: Perspectives on activity and context*. Cambridge: Cambridge University Press

Engeström Y (1999) Innovative learning in work teams: Analyzing cycles of knowledge creation in practice. In Y Engeström, R Miettinen & R-L Punamaki (eds.) *Perspectives on activity theory*. Cambridge: Cambridge University Press

Engeström Y (2000) From individual action to collective activity and back: developmental work research as an interventionist methodology. In P Luff, J Hindmarsh & C Heath (eds.) *Workplace studies: Recovering work practice and informing system design*. Cambridge: Cambridge University Press

Engeström Y (2001) Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work* 14(1): 133–156

Engeström Y, Miettinen R & Punamaki R (eds.) (1999) *Perspectives on activity theory*. Cambridge: Cambridge University Press

Ernst RE (2010) The follies of citation indices and academic ranking lists. A brief commentary to "Bibliometrics as weapons of mass citation". *Chimia* 64(1&2): 90

Etzkowitz H (2004) The evolution of the entrepreneurial university. *International Journal of Technology and Globalisation* 1(1): 64–77

Finch J (2012) *Accessibility, sustainability, excellence: How to expand access to research publications*. Report of the Working Group on Expanding Access to Published Research Findings: The Finch Group. Available at: www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf

Flyvbjerg B (2011) Case study. In N Denzin & Y Lincoln (eds.) *The Sage handbook of qualitative research* (4th edn.). Thousand Oaks, California: Sage

Friedlander A (2008) The triple helix: Cyberinfrastructure, scholarly communication, and trust. *Journal of Electronic Publishing* 11(1): 1–11

Fuchs C & Horak E (2008) Africa and the digital divide. *Telematics and Informatics* 25: 99–116

Gargouri Y, Hajjem C, Larivière V, Gingras Y, Carr L & Brody T (2010) Self-selected or mandated, open access increases citation impact for higher quality research. *PLOS ONE* 5(10): e13636

Garvey WD & Griffith BC (1972) Communication and information processing within scientific disciplines: Empirical findings for psychology. *Information Storage and Retrieval* 8: 123–136. Available at: http://infocuib.laborales.unam.mx/~mt12s01j/archivos/data/2/42.pdf

Gibbons M (1997*)* What kind of university? Research and teaching in the 21st century. 1997 Beanland Lecture. Melbourne: Victoria University of Technology. Available at: www.uws.edu.au/__data/assets/pdf_file/0017/405251/Gibbons_What_Kind_of_University.pdf

Gibbons M, Limoges C, Nowotny H, Schwartzman S, Scott P & Trow M (1994) *The new production of knowledge: The dynamics of science and research in contemporary societies*. London: Sage

Global Innovation Index (2012) *Global innovation index ranking*. Available at: www.globalinnovationindex.org/userfiles/file/GII-2012-Report.pdf

Gray E (2006) At the South Eastern frontier: The impact of higher education policy on African research publication. Paper delivered at the CODESRIA-ASC Conference on Electronic Publishing and Dissemination, Leiden, The Netherlands, 6–8 September 2006. Available at: www.policy.hu/gray/docs/ASC_Codesria_conference_paper.doc

Gray E (2010) Access to Africa's knowledge: Publishing development research and measuring value. *African Journal of Information and Communication* 10: 4–19. Available at: http://ahero.uwc.ac.za/index.php?module=cshe&action=downloadfile&fileid=18409092513353583836914

Gray E & Kahn R (2010) Two different versions of the knowledge society: Access to research. In A Rens & R Khan (eds.) *Access to knowledge in South Africa*. Yale Law School: New Haven, CT, pp. 147–168. Available at: http://yaleisp.org/wp-content/uploads/2009/10/A2K-in-SA.pdf

Gray E, Trotter H & Willmers M (2012) Scholarly communication in Africa: Aligning strategy and technology for increased visibility of Southern African research. Proceedings of the 2012 International Association for Media and Communications Research Conference. Available at: www.academia.edu/2898170/Scholarly_Communication_in_Africa_Aligning_Strategy_and_Technology_for_Increased_Visibility_of_Southern_African_Research

GRSA (Government of the Republic of South Africa) (1998) *The National Research Foundation Act, No. 23 of 1998*. Pretoria: GRSA. Available at: www.nrf.ac.za/files/file/act23.pdf

GRSA (2001) *National Plan on Higher Education*. Pretoria: Ministry of Education. Available at: www.unisa.ac.za/contents/projects/docs/National%20Plan%20Higher%20Education.pdf

GRSA (2003) *Higher Education Act. No 101 of 1997: Policy and procedures for measurement of research output of public higher education institutions*. Pretoria: Ministry of Education. Available at: www.researchoffice.uct.ac.za/usr/researchoffice/publication/DHETPolicy.pdf

Gu F & Widén-Wulff G (2011) Scholarly communication and possible changes in the context of social media: A Finnish case study. *The Electronic Library* 29(6): 762–776

Habib A & Morrow S (2007) Research, research productivity and the state in South Africa. *Journal for Higher Education Advancement* 5(1): 113–130

Harle J (2010) *Growing knowledge: Access to research in East and Southern African universities.* London: The Association of Commonwealth Universities. Available at: www.acu.ac.uk/publication/download?id=291%20

Harley D (2008) The university as publisher: Summary of a meeting held at UC Berkeley on Nov 1, 2007. *Journal of Electronic Publishing* 11(2). Available at: http://dx.doi.org/10.3998/3336451.0011.208

Harley D, Acord SK, Earl-Novell S, Arter J, Lawrence S & King CJ (2010) *Assessing the future landscape of scholarly communication: An exploration of faculty values and needs in seven disciplines*. Berkeley: UC Berkeley Center for Studies in Higher Education. Available at: http://escholarship.org/uc/item/15x7385g

Harley D, Earl-Novell S, Arter J, Lawrence S, and King CJ (2007) The influence of academic values on scholarly publication and communication practices. *Journal of Electronic Publishing* 10(2): 1–13

Hodgkinson-William C & Gray E (2009) Degrees of openness: The emergence of open educational resources at the University of Cape Town. *International Journal of Education and Development Using ICT* 5(5): 101–116. Available at: http://ijedict.dec.uwi.edu/include/getdoc.php?id=4680&article=864&mode=pdf

Houghton JW, Steele C & Henty M (2004) Research practices and scholarly communication in the digital environment. *Learned Publishing* 17(3): 231–249

Houghton J, Rasmussen B, Sheehan P, Oppenheim C, Morris A, Creaser C, Greenwood H, Summers M & Gourlay A (2009) *Economic implications of alternative scholarly publishing models: Exploring the costs and benefits*. London: JISC. Available at: www.jisc.ac.uk/publications/reports/2009/economicpublishingmodelsfinalreport.aspx

Hurd JM (2000) The transformation of scientific communication: A model for 2020. *Journal of the American Society for Information Science* 51(14): 1279–1283

InfoDev (2008) Enhancing the livelihoods of the rural poor through ICT: A knowledge map – South Africa country study. InfoDev Working Paper No. 13. Available at: www.infodev.org/en/Document.516.pdf

Internet World Stats (2012) Internet Usage Statistics for Africa (Africa Internet Usage and Population Stats). Available at: www.internetworldstats.com/stats1.htm [accessed 1 June 2013]

JISC (Joint Information Systems Committee) (2012) *Researchers of tomorrow: The research behaviour of Generation Y doctoral students*. London: JISC. Available at: www.jisc.ac.uk/media/documents/publications/reports/2012/Researchers-of-Tomorrow.pdf

Kamola IA (2012) Pursuing excellence in a "world class African University": The Mamdani Affair and the politics of "global" higher education. *Journal of Higher Education in Africa* 9(1&2). Available at: www.tc.umn.edu/~kamo0010/Kamola-JHEA.pdf

Karram G (2011) The international connections of religious higher education in sub-Saharan Africa: Rationales and implications. *Journal of Studies in International Education* 15(5): 487–499

King CJ, Harley D, Earl-Novell S, Arter J, Lawrence S & Perciah I (2006) *Scholarly communication: Academic values and sustainable models*. Berkeley: UC Berkeley Center for Studies in Higher Education. Available at: http://escholarship.org/uc/item/4j89c3f7

King DA (2004) The scientific impact of nations. *Nature* 430: 311–316

King K (2006) Research as consultancy in the African university: A challenge to excellence. In J Ozga, T Seddon & T Popkewitz (eds.) *World yearbook of education 2006 – Education, research and policy: Steering the knowledge-based economy*. London: Routledge

Kotecha P, Walwyn D & Pinto C (2011) *Deepening research capacity and collaboration across universities in SADC: A Southern African regional universities research and development fund*. Johannesburg: SARUA. Available at: www.sarua.org/files/publications/RDFund/SARU_RD%20Fund_May%202011%20Ver%201.pdf

Kotecha P, Wilson-Strydom M & Fongwa SM (eds.) (2012) *A profile of higher education in Southern Africa – Volume 2: National perspectives*. Johannesburg: SARUA. Available at: www.sarua.org/files/publications/SARUA%20leadership%20Dialogue%20Series/SARUA%20Profiles%20of%20HE%20Vol%202.pdfKraak A (ed.) (1998) *Changing modes: New knowledge production and its implications for higher education in South Africa*. Pretoria: HSRC Press

Kreps DM (1997) Intrinsic motivation and extrinsic incentives. *The American Economic Review* 87(2): 359–364

Laakso M, Welling P, Bukvova H, Nyman L, Björk B-C & Hedlund C (2011) The development of open access journal publishing from 1993 to 2009. *PLOS ONE* 6(6): e20961. Available at: www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0020961

Laakso M & Björk B-C (2012) Anatomy of open access publishing: A study of longitudinal development and internal structure. *BMC Medicine* 10: 124. Available at: www.biomedcentral.com/1741-7015/10/124

Lawrence PA (2008*)* Lost in publication: How measurement hurts science. *Ethics in Science and Environmental Politics* 8: 9–11

Lehmann S, Lautrup B & Jackson AD (2003) Citation networks in high energy physics. *Physical Review E* 68(2): 026113. Available at: http://link.aps.org/doi/10.1103/PhysRevE.68.026113

Limb P (2007) The politics of digital "reform and revolution": Towards mainstreaming and African control of African digitisation. *Innovation* 34(June): 18–27

Lindow M (2011) *Weaving success: Voices of change in African higher education*. New York: Institute of International Education. Available at: www.fordfoundation.org/pdfs/library/weaving-success.pdf

Mamdani M (1998) Teaching Africa at the post-apartheid University of Cape Town: A critical view of the "Introduction to Africa" core course in the Social Science and Humanities Faculty's foundation semester, 1998. *Social Dynamics* 24(2): 1–32

Mamdani M (2011a) Africa's post-colonial scourge. *Mail & Guardian online*. Available at: http://mg.co.za/article/2011-05-27-africas-postcolonial-scourge

Mamdani M (2011b) The importance of research in a university. Keynote speech at Makerere University Research and Innovations Dissemination Conference, Hotel Africana, 11 April 2011. Available at: www.pambazuka.org/en/category/features/72782

Maron N & Smith KK (2008) *Current models of digital scholarly communication. Results of an investigation conducted by Ithaka for the Association of Research Libraries*. Washington DC: Association of Research Libraries

Menendez A, Branson N, Lam D, Ardington C & Leibbrandt M (2011) Revisiting the "crisis" in teen births: What is the impact of teen births on young mothers and their children? SALDRU Policy Brief, available at: http://opensaldru.uct.ac.za/handle/11090/7

Metcalfe AS, Esseh S & Willinsky J (2009) International development and research capacities: Increasing access to African scholarly publishing. *Canadian Journal of Higher Education* 39(3): 89–109

Mitchell J (1984) Case studies. In R Ellen (ed.) *Ethnographic research: A guide to general conduct*. London: Academic Press

Mkandawire T (2011) Running while others walk: Knowledge and the challenge of Africa's development. *Africa Development* 36(2): 1–36

Mkandawire T & Soludo CC (1998) *Our continent, our future: African perspectives on structural adjustment*. Asmara, Eritrea: Africa World Press

Morgan C, Campbell B & Teleen T (2012) The role of the academic journal publisher and open access publishing models. *International Studies Perspectives* 13(3): 228–234

Moses I (1986) Promotion of academic staff: Reward and incentive. *Higher Education* 15(1–2): 135–149

Mosha HJ (1986) The role of African universities in national development. *Higher Education* 15(1–2): 113–134

Mouton J (2010) *The state of social science in sub-Saharan Africa: Knowledge divides (background paper)*. Paris: International Social Science Council. Available at: http://unesdoc.unesco.org/images/0019/001906/190659E.pdf

Mouton J, Boshoff N, de Waal L, Esau S, Imbayarwo B, Ritter M & van Niekerk D (2008). The state of public science in the SADC region. In P Kotecha (ed.) *Towards a common future: Higher education in the SADC region - Findings from four SARUA studies*. Johannesburg: SARUA. Available at: www.sarua.org/files/publications/TACF/Chapter4_full.pdf

Mutula SM (2008) *Evolving paradigms in the networked world and their implications for information management in African libraries*. Available at: www.ubrisa.ub.bw/bitstream/handle/10311/476/Mutula_AJLAIS_2008.pdf?sequence=1

Neylon C (2012) Science publishing: Open access must allow open use. *Nature* 492: 348–349. Available at: www.nature.com/nature/journal/v492/n7429/full/492348a.html?WT.ec_id=NATURE-20121220

NPC (National Planning Commission) (2012) *National development plan 2030: Our future – make it work*. Pretoria: NPC. Available at: www.npconline.co.za/MediaLib/Downloads/Downloads/NDP%202030%20-%20Our%20future%20-%20make%20it%20work.pdf

NRF (National Research Foundation) (2008) *Strategic plan of the National Research Foundation: NRF Vision 2015*. Pretoria: NRF. Available at: www.nrf.ac.za/files/file/nrf_vision_2015.pdf

NRF (2012) *Annual performance report 2011–2012: Research uncovering tomorrow*. Pretoria: NRF. Available at: www.nrf.ac.za/download.php?fn=/files/keybenefits/1354542904.pdf

Nyambura-Mwaura H & Akam S (2013) Telecoms boom leaves rural Africa behind. Available at: www.reuters.com/article/2013/01/31/us-africa-telecoms-idUSBRE90U0MK20130131

Nyamnjoh FB (2012) "Potted plants in greenhouses": A critical reflection on the resilience of colonial education in Africa. *Journal of Asian and African Studies* 47(2): 1–26

OECD (2012) *Education at a glance 2012: OECD indicators*. OECD Publishing. Available at: http://dx.doi.org/10.1787/eag-2012-en

Olukoshi A (2009) Conceptions of development in the context of the challenges of transformation facing Africa. In P. Kotecha (ed.) *Development and its implications for higher education in Southern Africa*. Johannesburg: SARUA. Available at: www.sarua.org/files/publications/SARUA%20leadership%20Dialogue%20Series/SARUA%20Leadership%20Dialogue%20Series%20Vol%201%20No%203.pdf

Oyelaran-Oyeyinka B & Nyaki Adeya C (2004) Internet access in Africa: Empirical evidence from Kenya and Nigeria. *Telematics and Informatics* 21(1): 67–81

Palmer CL (2005) Scholarly work and the shaping of digital access. *Journal of the American Society for Information Science and Technology* 56(11): 1140–1153

Palmer C & Cragin M (2008) Scholarship and disciplinary practices. *Annual Review of Information Science and Technology* 42(1): 163–212

Palmer CL, Teffeau LC & Pirmann CM (2009) *Scholarly information practices in the online environment: Themes from the literature and implications for library service development*. Dublin, Ohio: OCLC. Available at: www.oclc.org/programs/publications/reports/2009-02.pdf

Patterson M (2009) Is the end in cite? *Embo Reports* 10: 1186. Available at: www.nature.com/embor/journal/v10/n11/full/embor2009235.html

Pearson (Pearson Learning Solutions) (2010) *Social media in higher education: The survey*. Pearson Learning Solutions. Available at: www.slideshare.net/PearsonLearningSolutions/pearson-socialmediasurvey2010

Pouris ILR (2012) Science in South Africa: The dawn of a renaissance? *South African Journal of Science* 108(7/8): 1-6

Power M (1997) *The audit society: Rituals of verification*. Oxford: Oxford University Press

Procter R, Williams R, Stewart J, Poschen M, Snee H, Voss A & Asgari-Targhi M (2010) Adoption and use of Web 2.0 in scholarly communications. *Philosophical Transactions of the Royal Society* 368: 4039–4056

Raza R (2009) *Examining autonomy and accountability in public and private tertiary institutions*. Washington, DC: Human Development Network/World Bank

Regazzi JJ & Aytac S (2008) Author perceptions of journal quality. *Learned Publishing* 21(3): 225–235

Richards R (2008) *Assessing human development in SADC: 1990–2008*. Policy brief 52. Johannesburg: Centre for Policy Studies. Available at: www.cps.org.za/cps%20pdf/polbrief52.pdf

RIN (Research Information Network) (2009) *Communicating knowledge: How and why UK researchers publish and disseminate their findings*. London: RIN. Available at: www.rin.ac.uk/communicating-knowledge

RIN (2010) *If you build it, will they come? How researchers perceive and use Web 2.0*. London: RIN. Available at: http://rinarchive.jisc-collections.ac.uk/system/files/attachments/web_2.0_screen.pdf

Rossner M, Van Epps H & Hill E (2007) Show me the data. *Journal of Cell Biology* 179: 1091–1092

Rowlands I & Nicholas D (2005) Scholarly communication in the digital environment: The 2005 survey of journal author behaviour and attitudes. *Aslib Proceedings* 57(6): 481–497

Rowlands I & Nicholas D (2006) The changing scholarly communication landscape: An international survey of senior researchers. *Learned Publishing* 19(1): 31–55

Rowlands I, Nicholas D & Huntingdon P (2004) *Scholarly communication in the digital environment: What do authors want?* London: CIBER. Available at: www.homepages.ucl.ac.uk/~uczciro/ciber-pa-report.pdf

Ryan RM & Deci EL (2000) Intrinsic and Extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology* 25: 54–67

SADC (Southern African Development Community) (2012) *SADC ICT sector infrastructure development master plan*. Available at: www.sadc.int/files/9413/5293/3532/Regional_Infrastructure_Development_Master_Plan_ICT_Sector_Plan.pdf

Sall E (2001) *Academic freedom and the African community of scholars: The challenges*. Available at: www.nai.uu.se/publications/news/archives/011sall/

Sawyerr A (2004) African universities and the challenge of research capacity development. *JHEA/RESA* 2(1): 211–240

Schauder D (1993) Electronic publishing of professional articles: Attitudes of academics and implications for the scholarly communication industry. In *1993 IATUL Proceedings*. Purdue e-Pubs: 31–35. Available at: http://docs.lib.purdue.edu/iatul/1993/papers/3

Schwartz SH (1994) Are there universal aspects in the structure and contents of human values? *Journal of Social Issues* 50(4): 19–45

Schwartz SH (2007) *Basic human values: An overview*. Available at: www.ccsr.ac.uk/qmss/seminars/2009-06-10/documents/Shalom_Schwartz_1.pdf

Schwartz SH (2012) An overview of the Schwartz Theory of Basic values. *Online Readings in Psychology and Culture* 2(1): 1–20

Seglen PO (1997) Why the impact factor of journals should not be used for evaluating research. *British Medical Journal* 314: 497

Shore C & Wright S (1999) Audit culture and anthropology: Neo-liberalism in British higher education. *The Journal of the Royal Anthropological Institute* 5(4): 557–575

Smart JC (1978) Diversity of academic organisations: Faulty incentives. *Journal of Higher Education* (49)5: 403–419

Sondergaard TF, Andersen J & Hjorland B (2003) Documents and the communication of scientific and scholarly information. *Journal of Documentation* 59(3): 278–320

Strathern M (2000) The tyranny of transparency. *British Educational Research Journal* 26(3): 309–321

Suber P (2012) *Open access*. Cambridge, MA: MIT Press. Available at: http://mitpress.mit.edu/sites/default/files/titles/content/9780262517638_Open_Access_PDF_Version.pdf

Swan A (2012) *Policy guidelines for the development and promotion of open access*. Paris: UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002158/215863e.pdf

Task Force on Higher Education and Society (2000) *Higher education in developing countries: Peril and promise*. Washington, DC: The International Bank for Reconstruction and Development, The World Bank. Available at: www.tfhe.net/report/downloads/report/whole.pdf

Taylor J (2003) A higher education perspective on linking performance indicators to extrinsic rewards: An empirical analysis. *Journal of Public Affairs Education* 9(1): 13–31

Teferra D & Altbach P (2004) African higher education: Challenges for the 21st century. *Higher Education* 47: 21–50

Tenopir C (2003) *Use and users of electronic library resources: An overview and analysis of recent research studies*. Washington DC: Council on Library and Information Resources. Available at: www.clir.org/pubs/reports/pub120/pub120.pdf

Teo TSH, Lim VKG & Lai RYC (1999) Intrinsic and extrinsic motivation in internet usage. *Omega: International Journal of Management Science* 27: 25–37

Tettey WJ (2009) Postgraduate studies in Africa: The looming crisis. *International Higher Education* 57: 13-15

Te Velde DW (2005) *Globalisation and education: What do the trade, investment and migration literatures tell us?* London: Overseas Development Institution. Available at: www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2484.pdf

Thorin S (2006) Global changes in scholarly communication. In HS Ching, PW Poon & C McNaught (eds.) *eLearning and digital publishing*. New York: Springer-Verlag

Tijssen RJ (2007) Africa's contribution to the worldwide research literature: New analytical perspectives, trends, and performance indicators. *Scientometrics* 71(2): 303–327

Trotter H, Kell C, Willmers M, Gray E & King T (2014) *Scholarly communication in Southern Africa: Regional synthesis report*. Report of the Scholarly Communication in Africa Programme (SCAP) for the International Development Research Centre, March 2014, University of Cape Town

UCT (University of Cape Town) (2009) *UCT strategic plan (2010–2014)*. Cape Town: UCT. Available at: www.researchoffice.uct.ac.za/usr/researchoffice/info/policies/UCTStrategicPlan2010 2014.DOC

UCT (2012a) *University of Cape Town research report 2012*. Cape Town: UCT Research Office. Available at: www.research2012.uct.ac.za/books/fullreport/UCT2012%20Research%20 Report.pdf

UCT (2012b) *UCT Faculty of Commerce guidelines for performance evaluation of academic staff (excluding the College of Accounting)*. Cape Town: UCT. Available at: www.hr.uct.ac.za/usr/hr/performance/promotion/academic/commerce_guidelines_perf_eval_academic_excl_college_2013.doc

UCT (2012c) *UCT annual report 2012*. Cape Town: UCT. Available at: www.uct.ac.za/usr/finance/afs/afs2012.pdf

UIS (UNESCO Institute for Statistics) (2010) *Trends in tertiary education: Sub-Saharan Africa*. UIS Fact Sheet No. 10. Available at: www.uis.unesco.org/FactSheets/Documents/fs10-2010-en.pdf

UNAM (University of Namibia) (2009) *Annual research report 2009*. Windhoek: UNAM. Available at: www.unam.na/ research/documents/ResearchReport2009.pdf

UNESCO (United Nations Educational, Scientific and Cultural Organisation) (2012) *New patterns in student mobility in the Southern African Development Community*. Available at: www.uis.unesco.org/Education/Documents/ib7-student-mobility-africa-2012-v4-en.pdf

UNISIST (United Nations International Scientific Information System) (1971) *UNISIST study report on the feasibility of a World Science Information System, by the United Nations Educational, Scientific and Cultural Organization and the International Council of Scientific Unions*. UNESCO: Paris. Available at: http://unesdoc.unesco.org/images/0006/000648/064862eo.pdf

Urama KC, Ozor N, Kane O & Hassan M (2010) *UNESCO science report 2010: The current status of science around the world*. Paris: UNESCO. Available at: http://unesdoc.unesco.org/images/0018/001899/189958e.pdf

Vallerand RJ, Pelletier LG, Blais MR, Briere NM, Senegal C & Valliers EF (1992) The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement* 52: 1003–1017

Vanclay J (2012) Impact factor: Outdated artifact or stepping-stone to journal certification? *Scientometrics* 92(2): 211–238. Available at: http://arxiv.org/abs/1201.3076

Vaughan CL (2008) Alternatives to the publication subsidy for research funding. *South African Journal of Science* 104(3–4). Available at: www.scielo.org.za/scielo.php?pid=S0038-23532008000200001&script=sci_arttext

Varghese NV (2009) *Private sector as a partner in higher education development in Africa*. International institute for Educational Planning. UNESCO Policy Brief. Available at: www.iiep.unesco.org/fileadmin/user_upload/Research_Governance_and_Management/pdf/PB_PHE_Africa.pdf

Ware M & Mabe M (2009) *The STM report: An overview of scientific and scholarly journal publishing*. Oxford: International Association of Scientific, Technical and Medical Publishers. Available at: www.stm-assoc.org/2009_10_13_MWC_STM_Report.pdf

Weller M (2011) *The digital scholar: How technology is transforming scholarly practice*. London: Bloomsbury

Wilson-Strydom M & Fongwa SM (2012) *A profile of higher education in Southern Africa – Volume 1: A Regional Perspective*. Johannesburg: SARUA. Available at: www.sarua.org/files/publications/SARUA%20leadership%20Dialogue%20Series/SARUA%20Profiles%20of%20HE%20Vol%201.pdf

Wood F (2010) Occult innovations in higher education: corporate magic and the mysteries of managerialism. *Prometheus: Critical Studies in Innovation*, 28(3): 227–244

Zeleza PT (2002) The politics of historical and social science research in Africa. *Journal of Southern African Studies* 28(1): 9–23